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Perceptions and practices of effective distance teaching: a survey of faculty at Iowa State University

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Perceptions and practices of effective distance teaching: A survey of faculty at Iowa State University

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ABSTRACT

This study was conducted to examine the beliefs and practices of effective distance teaching by university faculty members and to compare distance teaching practices with face-to-face practices. An on-line survey using multiple choice and open-ended questions was distributed to a convenience sample of faculty members from a large, Midwestern university who taught at a distance between the spring of 2001 and the spring of 2005. Descriptive data were collected on demographics, beliefs, and practices of faculty members teaching at a distance. The response rate for this study was almost 64%. The results showed evidence that the faculty members were satisfied with teaching at a distance. Furthermore, the results showed that the faculty members believed their distance education students are as satisfied or more satisfied and achieve as much or more than their face-to-face students. Although the faculty members reported receiving adequate administrative and technical support for teaching distant courses, they also indicated wanting much more than what they currently receive. Finally, the results provided evidence that the faculty members knew what elements are effective for delivering courses at a distance, and they are working to implement them. The findings of this study may help inform administrators on how to support faculty teaching at a distance; faculty on how to deliver courses effectively at a distance, and researchers on issues in distance education that need further study.

CHAPTER 1

INTRODUCTION

In recent years, more and more institutions of higher education have begun providing degree-granting programs and courses at a distance. According to the most recent statistics from the U.S. Department of Education, in 2000–2001, college-level, credit-granting distance education courses at either the undergraduate or graduate/first-professional level were offered by 55 percent of all two-year and four-year institutions. (U. S. Department of Education, 2003, p. iii).

Iowa State University is no exception. As of spring 2005, the number of courses listed as distance education at Iowa State University had reached over 1,200, and the number of faculty teaching was just under 400. While the number of courses and faculty can easily be counted, very little is known about faculty members' experiences in distance education. This study is designed to begin to examine this issue.

The next sections of this paper provide a brief review of the literature, an overview of the problem and relevant research, the purpose of the study, a brief overview of the procedures used in the study, and the limitations of the study. However, a definition of distance education is needed first.

Definition of Distance Education

The common definition of distance education includes the separation of teacher and student, either by space or time, or both. Moore and Kearsley's (1996) definition seems most appropriate for this study: "Distance education is planned learning that normally occurs in a

different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements" (p. 2).

Distance education can be categorized into synchronous or asynchronous modes. Synchronous mode means students are separated from the teacher (and possibly other students in the class) by space but not by time. Asynchronous mode means students are separated from the teacher (and possibly other students) by space and time (Bernard, et al., 2004). There are also non-interactive and blended or hybrid courses that utilize aspects of both synchronous and asynchronous education as well.

Within the two modes are a variety of delivery methods. Internet-based instruction can include the use of email, chat rooms, streaming video, web-based courseware (WebCT, Blackboard, etc.), video conferencing, and the use of web sites (other than courseware). Other types of delivery include videotapes, CDs, DVDs, and, of course, print. There are other specialized delivery methods, such as the Iowa Communications Network (ICN), a fiber-optic system only used in Iowa. Another type is satellite delivery of programs that can be received at specific satellite downlink facilities. Some states broadcast educational programs on their local public television station.

With distance education defined, the next step in this study was to search through the literature to determine what practices could be identified as effective for delivering courses at a distance. The next section summarizes those findings.

Brief Review of the Literature

The first look at the literature on effective practices in distance education was an examination of arguments on whether there is a difference between teaching at a distance and teaching face-to-face. Literature from Clark (1983) and Russell (1999) both concluded that there is no difference between the two, and that it didn't matter how the material was delivered, so long as the content was of high quality.

However, in 1999, studies began to appear that said there is indeed a difference between face-to-face and distant courses. These studies concluded that many of the claims made by Russell and Clark could be disputed because of inappropriate statistical analyses. Using meta-analyses, three different research groups examined the individual studies presented in Russell's work and concluded that some studies favored distance education while others favored face-to-face delivery. These studies provided evidence that there may be a difference between face-to-face and distant courses.

Furthermore, Bernard, et al. (2004), Phipps and Merisotis (1999), and Zhao, et al. (2004) all found that factors effective in distance education are the same factors in face-to-face courses. (This actually lines up with Russell's view: any media can be effective if appropriately applied.) In light of this conclusion, Phipps and Merisotis called for the use of Chickering and Gamson's Seven principles for good practice in undergraduate education (1987) to inform good practices in distance education.

In their work, Chickering and Gamson (1987) identify what they call "six powerful forces" in education: activity, cooperation, interaction, expectations, responsibility, and diversity. These categories were used to guide the search through the literature for similar themes. Several other categories that emerged from the literature were also included:

planning and preparation, delivery and access, and evaluation and assessment. What follows is a brief summary of what was found in the distance education literature for each category.

Activity

Learners must be actively engaged in the course. Instructors can promote this through higher-level thinking skills, problem solving, communities of interest, and interaction. Actively engaging the students promotes achievement and improves students' attitudes toward learning.

Cooperation

Cooperation is not highly promoted in the literature for distance education. Some felt it could be useful if facilitated properly, yet most acknowledged the difficulty of group work among distance education students, and some said that possibly it is not even essential.

Interaction

Interaction was the most widely mentioned effective practice. Types of interaction are learner-teacher, learner-learner, learner-content, and a fourth identified as learner-interface. When both synchronous and asynchronous methods are used to interact, significant evidence of a difference was found. Interaction must be timely, appropriate, and meaningful. The literature also indicates that interaction improves motivation and retention, reduces anxiety, and affects student achievement and satisfaction.

Expectations

Both learners and instructors have expectations that need to be met. For example, instructors expect students to complete the assigned coursework. Students expect instructors to provide a clear course structure. Meeting expectations is likely to improve the quality of distant courses, as well as faculty and student attitudes toward distance education.

Responsibilities

Similar to expectations, both learners and instructors have responsibilities. It is the learner's responsibility to complete course work on time, and keep up with the materials. The instructor's responsibility is to present content that is relevant and current and to provide feedback that is timely and meaningful.

Diversity

Chickering and Gamson define diversity as individual talents and learning styles, but the literature seems to define diversity in terms of ethnicity and race, for example. Not much was found in this area.

Planning and preparation

Preparing to deliver a course at a distance takes much more planning and preparation than face-to-face courses. Instructors must choose the type of media/delivery method and plan for all types of interaction. If necessary, instructors should receive training and technical support and possibly make changes to their teaching materials to make them appropriate for distance teaching.

Delivery and access

This category refers to the ease with which learning materials can be accessed and used. The literature promotes distance education as a way to serve the under-served, and as a way to deliver many different disciples to anyone, anywhere, and at any time.

Evaluation and assessment

Distant courses and programs should meet the same standards required in face-to-face courses and programs. They should also be consistent, in that students should easily be able to move between the two environments with no difference in learning outcomes. Satisfaction

and achievement of distance education students should be at least equal to those of face-to-face students. Finally, making results of course evaluations available would help potential students know the quality of the course or program as well.

Problem Statement

Because of the ever-increasing number of courses taught at a distance, it is important to know what teaching methods are effective for distant delivery. A search through the relevant literature provided numerous publications describing effective practices for teaching at a distance. However, the literature on whether faculty are aware of or use these practices is limited. Furthermore, it is not clear whether faculty distinguish a difference between methods used for teaching at a distance and those used to teach in a face-to-face setting. The literature shows that there are effective practices for teaching at a distance, which leads to the purpose of this study.

Purpose and Research Questions

The aim of this study is to examine the beliefs and practices of those who teach at a distance in higher education and to compare the similarities and differences between those practices and those used in face-to-face settings. It is hoped that this study will produce insights into the following questions:

- What are the demographic characteristics of faculty teaching at a distance?
- What do the ISU faculty believe are good practices for teaching at a distance?
- What practices do faculty actually use to teach at a distance?

- How do practices when teaching at a distance compare with practices used in face-to-face teaching?

Procedures

The design of this study was a survey used to collect descriptive data from the population. The population was one of convenience, a database of faculty that had taught at a distance at Iowa State University. Participants were not randomly selected, and all participants received the same survey. The survey contained both quantitative and qualitative questions. Questions were based on categories for effective practices found in the literature.

Limitations

This study is limited to a database of faculty who had taught at a distance between the spring of 2001 and the spring of 2005. The use of a convenience sample limits the ability to generalize the findings outside of Iowa State University. Those teaching at other institutions may have different practices and beliefs and therefore will not be represented by this sample population.

Summary

This chapter presented a definition of distance education, summarized the reviewed literature, introduced the problem, purpose and limitations of this study, and described the procedures used in the study. The research questions were also established. Chapter 2 contains a more in-depth look at the literature and research related to the topic of effective practices for teaching at a distance, as well as a brief overview of the debate of "no

significant difference" between distance teaching and face-to-face teaching. The methodology for this study is presented in chapter 3, and includes the design and delivery of the survey instrument and the collection and organization of the data. Chapter 4 provides a summary of the results, and chapter 5 contains a discussion of the study.

CHAPTER 2

REVIEW OF THE LITERATURE

This literature review chapter begins with a discussion of the methods used for searching through the literature and the criteria used in selecting which pieces to include. Next is a brief summary of articles that compare distance teaching to face-to-face teaching. Chickering and Gamson's (1987) six powerful forces in education then serve as the outline for the next section on good practices in distance teaching. Finally, additional good practices in distance teaching that were found in the literature are described.

The Search

The initial search through the literature specifically targeted "best practices in distance education." The first search was through the Internet search engine, Google. Key phrases and words included "literature review," "instructional technology," "best practices," "distance teaching" and "principles, distance, and education."

The next stage of the search was through the Educational Resource Information Clearinghouse (ERIC). Other key words and phrases were added, such as "quality," "educational/instructional technology," and "benchmarks."

The best sources came through reverse searches in two articles by Zhao et al. (2004) and Bernard et al. (2004), both having lengthy reference sections. These sources, as well as the Sloan Consortium web site listing of the *Five Pillars of Quality Online Education*, and Roblyer and Wiencke's (2003) rubric for effective interaction, were provided by a professor and fellow classmates.

Samples

Only publications related to higher education from peer-reviewed journals, books, and respected organizations were selected. Other criteria included studies of

- Comparisons between distance teaching and classroom teaching
- Good, best, effective, or quality practices in distance teaching, including benchmarks
- Reviews of literature and research in distance education

Over 40 articles were identified through this search. Publications that dealt with distance education as a whole were favored over those that focused upon more specific delivery methods. Two articles that specifically addressed Internet-based teaching were included: *Five Pillars of Quality On-Line Education,* from The Sloan Consortium web site, and *Quality on the Line: Benchmarks for Success in Internet-Based Distance Education*, published on the Institute for Higher Education Policy [IHEP] web site. These two were included primarily because of the publishers' reputation for producing scholarly research in the field. The final literature review consists of 21 publications.

Is There a Difference or Isn't There?

The question of whether there or not is a difference between teaching at a distance and face-to-face teaching has been debated for some time. In 1983, Richard Clark wrote, "Any medium can be effective if appropriately applied, so cost and access should decide media selection. Media are mere vehicles that deliver instruction but do not influence student achievement any more than the truck that delivers our groceries causes changes in nutrition" (p. 445).

Based on Clark's work, Thomas Russell later published a paper titled "The No Significant Difference Phenomenon" (1999). This work was a compilation of 355 studies published between 1928 and 1998. These studies claimed to show evidence of no significant difference in the effectiveness of teaching at a distance versus teaching face-to-face. If true, then the methods for teaching face-to-face should be as effective in a distance education setting (Institute for Higher Education Policy [IHEP], 2000). Not everyone agreed with Russell's assertion.

Bernard, et al. (2004) found numerous problems with Russell's approach. The studies selected for the publication were of varying quality and sample sizes, and generalizations made about the samples could not necessarily be applied to the entire distance education population.

Another criticism of Russell's work emerged in 2004 in "What Makes the Difference: A Practical Analysis of Effectiveness of Distance Education" (Zhao, Lei, Yan, Tan, & Lai, 2004). This key study, a meta-analysis of research on distance education between the years 1996 and 2002, was meant to identify factors of effectiveness in distance education. Upon closer inspection of these studies, Zhao et al. found many differences across Russell's compilation of studies. They cited biased sampling; a focus on the wrong factors; studies identified based on their outcomes; and different ways of measuring effectiveness, reliability, and validity. Zhao et al. also noted that not all of the studies were necessarily experimental.

Not only were Zhao, et al. concerned with the studies selected for Russell's work, but they were also concerned that such a wide variety of studies were grouped together for comparison. Even comparing distance education programs is problematic, in that there is

such diversity in the way programs are administered, and studies done would vary a great deal in their outcomes.

> Individually many studies found significant differences between distance and face-to-face education, some favoring distance education while others face-to-face education. In fact, contrary to Russell's claim, it is rarely the case that the individual studies included in [meta-analyses conducted by others]...reported no significant difference between distance and face-to-face instruction. However, the difference disappears when the studies are considered as a whole (Zhao et al., 2004, p. 7).

These two meta analyses was not the first to challenge Russell's work. In 1999, Phipps and Merisotis published a meta-analysis on about 40 studies that were classified as original research. They identified in the studies three measures of the effectiveness of distance education:

- Student outcomes, such as grades and test scores
- Student attitudes about learning through distance education
- Overall student satisfaction toward distance learning

The majority of the research they found indicated that distance education had positive outcomes in all three of these areas. Distance learning courses compared favorably with classroom-based instruction, with students receiving similar grades or test scores and having similar attitudes toward the course. Students and faculty also were found to have positive attitudes toward distance learning (Phipps & Merisotis, 1999).

The authors concluded that improving distance education is not a question of technology but one of pedagogy and called for a re-examination of Chickering and Gamson's "Seven Principles for Good Practice in Undergraduate Education" (1987) as a focus for

distance education. These conclusions would indicate that teaching and studying at a distance can be as effective as traditional instruction, when the method and technologies used are appropriate to the instructional tasks, when there is student-to-student interaction, and when there is timely teacher-to-student feedback. (Moore & Thompson, 1990; Verduin & Clark, 1991).

However, the conclusions drawn by Phipps and Merisotis (1999) would be scrutinized by Bernard et al. (2004), who argued that Phipps and Merisotis selected only those studies that reinforced the point of view that distance education is as good as face-to-face instruction if good pedagogy is used. They did not necessarily select studies that accurately characterized the existing research on distance education. So the research had gone from "there is no difference" to "there is no difference if good pedagogy is applied."

A surprising discovery that Zhao et al. (2004) made is that studies completed before 1998 did not seem to find a significant difference between face-to-face education and distance education. However, during or after 1998, studies showed significantly more effectiveness in distance education than in face-to-face instruction. Especially notable was the favoring of distance education when the instructor was also the author of the study. Effectiveness ratings also depend on what is measured. When student evaluations of learning are measured, there is no significant difference in face-to-face versus distance, although face-to-face is slightly favored. When satisfaction, grades, attitudes, and participation are measured, distance education is perceived as significantly better than face-to-face (Zhao et al., 2004).

The answer to the question of the effectiveness of distance education cannot be found in a single study, according to Bernard et al. (2004) They conducted a meta-analysis of 232

comparative studies on distance education published between 1985 and 2002. Contrary to Zhao et al. (2004), they state, "It is only through careful reviews of the general state of affairs in a research literature that large questions can be addressed and the quality of the research itself and the veracity of its findings can be assessed" (p. 383).

The difference between these two meta-analyses seems to be only in their semantics. Both refute the claims of Russell that there is no significant difference between face-to-face and distance education. Both also agree that effect size of individual studies needs to be assessed and used to complete the meta-analysis. However, Bernard et al. (2004) argue that individual studies are not important on their own. Each study has to be statistically "fixed" before it can be added back to the group assessment to get the big picture. Zhao et al. (2004) argue that you cannot just look at the big picture. Each study has to be looked at individually and statistically "fixed", because it depends on what is being measured, as mentioned before.

Variability in content, learner and instructor characteristics, delivery methods, and other factors all make it impossible to generalize whether there is a difference between face-to-face and distance teaching. Considered as a whole, there is no significant difference found in these studies. However, using the meta-analysis by Zhao et al., and considered individually, there is a wide range of outcomes (variation of effect sizes). Two-thirds of the studies are positive and the other one-third are negative. (Zhao et al., 2004).

The Zhao et al. analysis further indicated that factors found to have an impact on effective distance education are also the same factors in face-to-face education. Bernard et al. (2004) agreed. "'Good' DE applications and 'good' classroom instruction should be, in principle, relatively equal to one another, regardless of the media used, especially if a medium is used simply for the delivery of content" (p. 382).

Taken together, the results of these studies suggest a need to focus upon effective pedagogy in distance education. The next section will compare a widely known publication of good practices in (face-to-face) undergraduate education with good practices listed in the literature on distance education.

Effective Practices in Distance Education

In 1987, the American Association of Higher Education (AAHE) Bulletin published "Seven Principles for Good Practice in Undergraduate Education," by Arthur Chickering and Zelda Gamson. Based on over 50 years of research on higher education, these principles are known and cited by educators everywhere as fundamental criteria for quality education. In their article, Chickering and Gamson note that these seven principles, when combined, create what they call "six powerful forces" in education. This review will examine the literature on distance education in regard to these six powerful forces, which are:

- Activity
- Cooperation
- Interaction
- Expectations
- Responsibility
- Diversity

Activity

To facilitate activity, instructors must encourage independent participation and reflective thinking. According to Chickering and Gamson, "Learning is not a spectator sport" (1987, p. 3). The authors encourage active participation by students, instead of memorization

or materials. Other researchers agree. Learners must be actively engaged and use problem-based as well as knowledge-based learning (American Distance Education Consortium [ADEC], 2004; Bernard, 2004; Birnbaum, 2001; Chiti, 2001; Moore & Kearsley, 1996).

The literature on distance education concurs on this principle. Courses should be designed to require students to engage in higher-order thinking skills, such as analysis, synthesis, and evaluation (problem-based learning) as part of their requirements. Knowledge-based learning involves recall, comprehension, and application (ADEC, 2004; Phipps & Merisotis, 1999).

In face-to-face classrooms, activity is easier to accomplish because students can be called on or made to work cooperatively. At a distance, activity is more difficult. It must be planned for and, to a certain extent, facilitated by the instructor. "The single most important skill that all distance educators must develop is to make their students active participants in their educational program. It is not too difficult to present information over a distance, but getting people to participate and making learning active at a distance is much harder" (Moore & Kearsley, 1996, p. 133).

At a distance, instructors can promote active discussion by avoiding questions that lead to right or wrong answers (Chiti, 2001), by focusing on real-world problem solving (ADEC, 2004), and by using activities that require independent participation (Birnbaum, 2001). Whether at a distance or face-to-face, active learning fosters achievement and improves students' attitudes toward learning (Bernard et al., 2004).

Cooperation

Getting students at a distance to cooperate is no easy task. Chickering and Gamson find that "Learning is enhanced when it is more like a team effort than a solo race" (p. 2). Yet

the Institute for Higher Education Policy (2000) conducted case studies of six higher education institutions regarding benchmarks for success in Internet-based distance education and concluded that benchmarks on collaboration were not essential to distance education. In contrast, both ADEC (2004) and Birnbaum (2001) encourage group collaboration, participation, and cooperative learning.

An observational study conducted on two sets of students, one set face-to-face, the other set at a distance (not defined), showed that the distance education students performed as well as face-to-face students on individual tests and that they could prepare for tests by reading text and listening to lectures. However, overall class performance was higher for face-to-face students, suggesting that distance education students may not do as well on group homework and group projects. This finding may imply that distance education is more appropriate for classes that do not involve many group assignments (Barkhi & Brozovsky, 2000).

Distance education students can use e-mail, chat rooms, discussion threads, or other courseware to upload files or interact with one another. Here, only computer-based cooperation is emphasized, but, of course, there are other ways to communicate, such as telephone or video conferences, synchronous communication systems (such as the Iowa Communications Network, or ICN), or by having one or more face-to-face meetings included as part of the course.

These methods obviously take more effort than do traditional face-to-face courses and require motivation on the part of the distance education students. Group work and cooperation may not be the best choice for distance education students, but many times these students are working adults capable of independent learning anyway (Gunawardena &

McIsaac, 2004). Overall, very little can be found in the literature regarding encouraging cooperation as a good practice in distance teaching. Instead, there is a heavy focus on interaction.

Interaction

Chickering and Gamson (1987) list "frequent student-faculty contact in and out of classes [as] the most important factor in student motivation and involvement" (p. 2). The literature on distance education seems to support this statement.

There are several kinds of interaction possible in distance education, and good distance teaching incorporates all forms of interaction (Moore & Kearsley, 1996). Moore and Thompson (1990) discuss three types of interaction. *Learner-instructor* interaction is dialog between the teacher and student with feedback from the teacher. *Learner-content* interaction is how students obtain information from the class materials. *Learner-learner* interaction is the dialog that occurs between students (this can be structured or unstructured).

Hillman, Willis, and Gunawardena (1994) have taken the idea of interaction a step further and added a fourth component to the model: *learner-interface* interaction, the interaction between the learner and the media used in delivery of the instruction. Learners who lack the basic skills required to use the technology spend inordinate amounts of time learning to interact with it and have less time to learn the course materials.

Roblyer and Wiencke (2003) found that most research showed that interaction seems to have an impact on student achievement (reflected by grades and test performance), as well as on satisfaction. However, they also noted great variation in what faculty and students viewed as interaction. In order to clarify how to make their distance courses more interactive, they put together a rubric for faculty to use to determine the degree of interactivity in their

own distance learning courses. (See Appendix A.) This rubric was based on information obtained from a review and analysis of literature and research on interaction.

Evidence. Russell (1999) asked, "Why does interactivity produce no better results even though some believe it does?" But as noted previously, Russell's analysis of studies has been criticized. Zhao et al. (2004) discovered in their meta-analysis that studies of distance programs that used both synchronous and asynchronous methods for interaction demonstrated significant evidence of a difference in effectiveness, with distance education students outperforming face-to-face students. "Live" human instructors are needed to ensure quality, meet students' emotional needs, and reduce students' anxiety, which is often caused by separation and fear of technology (Birnbaum, 2001; McIsaac & Gunawardena, 2004; Zhao et al., 2004). "The greater the dialogue in distance education, the smaller the transactional distance between the two parties" (Verduin & Clark, 1991, p. 162).

To be truly effective, interaction must be two-way. If possible, instructors should resist the urge to simply lecture and should utilize the interactive nature of the technology (Moore & Kearsley, 1996; Verduin & Clark, 1991). However, interaction needs to be timely, meaningful, and appropriate. As in face-to-face courses, facilitating a higher level of personal connection with the students in distance courses is essential for successful learning and student satisfaction (ADEC, 2004; Birnbaum, 2001; McIsaac & Gunawardena, 2004; Phipps & Merisotis, 1999; Sloan Consortium, 2003).

Bernard et al. (2004) list interaction as one of the predictors of achievement and attitude in distance education. Opportunities for communication benefit students.

> Encouragement of contact (either face-to-face or mediated) predicted outcomes for both synchronous and asynchronous DE when achievement and attitudes were examined jointly. This suggests that DE should not be a solitary experience, as it often was in the

> era of correspondence education. Instructionally relevant contact with instructors and peers is not only desirable, it is probably necessary for creating learning environments that lead to desirable achievement gains and general satisfaction with DE (p. 412).

It is worth noting that interaction can be beneficial to instructors as well as students. At a meeting of the Asynchronous Learning Association (ALA), one professor, when discussing the regular chat sessions he holds with his distance education students, indicated that he felt he knew his distance education students better than his face-to-face students in the same class (April 2006).

Expectations

Chickering and Gamson emphasize expectations that the instructor has of the students, but the literature on distance education also emphasizes expectations that the students hold for the instructor. No matter what delivery method is used, the student and the instructor must meet each other's expectations. Students are expected to complete assignments on time, to have the required background for the course, and to have the technical skills to learn at a distance (Chiti, 2001). Students' expectations of the instructor include structure, training and support, and experience and knowledge.

Structure. Before the course begins, the learning objectives and structure must be made clear to the students. Instructor and students must agree on what is expected, such as how and when assignments are to be submitted, how and when students can expect feedback, and criteria of acceptable student performance (ADEC, 2004; Moore & Kearsley, 1996; Phipps & Merisotis, 1999; Verduin & Clark, 1991).

Training and Support. Both new and experienced distance education instructors require some level of support from their administration. This might include incentives or

compensation, but more importantly, it should include training and ongoing technical support. Training improves the quality of the course (Verduin & Clark, 1991) and improves faculty attitudes as experience grows and familiarity with the technology increases (Gunawardena & McIsaac, 2004). Furthermore, the delivery system should be reliable and preferably have centralized support, where technology assistance is available (Phipps & Merisotis, 1999).

Many instructors require assistance in the transition from face-to-face to distance teaching. Not only must faculty be proficient in content delivery but they must also be proficient with the operation of the technology (Gunawardena & McIsaac, 2004) as well as the best way to teach using the chosen technology. "This means that you must not only understand the limitations and the potential of each piece of technology (and in some cases, how to operate it) but also know the teaching techniques associated with successful use of that technology" (Moore & Kearsley, 1996, p. 126).

Training and support are necessary in order to establish desirable skill sets in faculty, as well as the different methods for developing these skills (Bernard et al., 2004; Zhao et al., 2004). While some mention of compensation, incentives, and/or rewards are made in several publications (Phipps & Merisotis, 1999; Sloan Consortium, 2003; Birnbaum, 2001), the emphasis lies mainly on training and support.

Experience and knowledge. Finally, the longer instructors teach at a distance, the more comfortable they should become with the technology and the more they should understand their students (Moore & Kearsley, 1996; Verduin & Clark, 1991; Zhao et al., 2004) so that communication is more effective and instructors can anticipate students' needs. "Distance teaching is a greater challenge for less experienced instructors; those with more

experience are more able to anticipate student responses and plan how to deal with them" (Moore & Kearsley, 1996, p. 126).

Responsibility

The responsibilities of effective distance education do not fall only upon the instructor. Gunawardena and McIsaac (2004) wrote, "Distance education students, perhaps, have greater freedom but with that freedom comes responsibilities. Freedom demands that the student make a number of important decisions which would normally be made for him" (p. 424). Students who learn at a distance are often adult learners who are responsible for themselves. The burden is on the student to complete the coursework on time and make sure the instructor receives it. Chickering and Gamson (1987) also emphasize the students' responsibilities: "Time plus energy equals learning" (p. 4).

Instructors must be actively responsible for the content presented, so students are not overloaded with information or made accountable for irrelevant material. "Students were not impressed by having encyclopedic knowledge at their fingertips; they simply wanted to know the information for which they were responsible" (Chiti, 2001, p. 4). Not only must the content be clear and concise but also the material, courses, and programs must be kept current (Lezberg, 1998).

As mentioned before, it is also the instructor's responsibility to provide timely and meaningful feedback on all assignments and to keep students abreast of their progress (Lezberg, 1998; Verduin & Clark, 1991).

> If students do not receive feedback, they will fail to develop a sense of participation in the course or program. While many students can tolerate some delay, most people like feedback to be immediate, and few people find one-way communication with no feedback to be satisfying…in general it should be prompt, focused, and constructive.

> Lack of sufficient relevant feedback is one of the most common sources of dissatisfaction and frustration for distance learners" (Moore & Kearsley, 1996, p. 119).

Verduin and Clark (1991) say feedback holds meaning for students. "Quick redirection or remediation can turn the process around so that learning will continue" (p. 163). Feedback will be further discussed a little more in the *Evaluation and Assessment* subsection.

Diversity

There is very little mentioned in the literature for distance education regarding diversity. When it is mentioned, it deals more with students' characteristics and learning styles, rather than issues such as race, ethnicity, age, or gender. "Each adult learner is different from other adult learners. Each adult possesses different beliefs, values, needs, attitudes, self-concept, and past experiences that must be considered as planning for the learning experience progresses" (Verduin & Clark, 1991, p. 164). Chickering & Gamson (1987) use the term to indicate many different talents and styles of learning. The term *diversity* as used today is addressed further in the subsection *Delivery and Access*.

This review has so far covered the literature on distance education as it relates to Chickering and Gamson's (1987) six powerful forces in education. However, several additional categories emerged from the literature on distance education and need to be included in this review. These categories are: planning and preparation, delivery and access, and evaluation and assessment.

Additional Categories for Effective Practice in Distance Education

Planning and Preparation

Planning and preparing to deliver a course seems to be regarded in the literature as a given. Whether teaching face-to-face or at a distance, time must be spent preparing materials, working out the syllabus, choosing textbooks, and whatever else the instructor feels is necessary. But teaching at a distance adds a new dimension: the separation of the teacher and the student. Many new issues must now be considered.

Type of media/delivery method. Selection of media should be based on the course content and goals (ADEC, 2004), but most distance education programs rely on technologies that are already in place or are being considered for cost-effectiveness (Gunawardena & McIsaac, 2004). The design of the course relies heavily on the available technology. Therefore, being able to choose the appropriate media is essential. The right technology can facilitate interaction, assuage students' perceptions of distance education, and affect learning outcomes. Changing one aspect or component of a distance course will certainly have an effect on all other aspects of the course (ADEC, 2004; Barkhi & Brozovsky, 2000; Gunawardena & McIsaac, 2004; Moore & Kearsley, 1996).

Planning interaction. Courses should provide multiple levels of interaction (ADEC, 2004) but all interaction must be planned (Moore & Kearsley, 1996). As mentioned in the *Expectations* subsection, the instructor and students must agree on what is expected of one another, including the types and frequency of interaction (learner-learner, learner-instructor, learner-content, and learner-interface, as discussed in the *Interaction* subsection.)

Training and support. Training and support are necessary in order to establish desirable skill sets in faculty, as well as the different methods for developing these skills

(Bernard et al., 2004; Zhao et al., 2004). In the ideal situation, training would be ongoing and support services would always be available (Chiti, 2001).

In "A Systems View," Moore & Kearsley (1996) advocate course design using teams to create courses. "In the future we think it will be better for students, teachers, and educational institutions if every distance education course was designed and developed in a systematic way and if every distance education organization is developed, as other modern agencies are, as a total system" (p. 6).

Teaching materials. "Traditional methods of teaching can not easily be converted to a distance education model without some type of modification. Conversion of almost all instructional material will have to be made. The instructor must be aware that doing so requires time and planning" (Birnbaum, 2001, p. 21).

Some courses are easier to adapt or are more suitable for converting to distance education. No matter how easy or difficult, attention must be paid to the quality of the course design and learning materials. This is why planning and design pay off (Bernard et al., 2004; Verduin & Clark, 1991).

Preparation time. The optimal time to devote to preparation is not easily estimated. Instructors need to take into consideration their teaching load, class size, contact hours, and rethink the amount of preparation time needed (Chiti, 2001). Perhaps the best guide is to allow more time than you think necessary and prepare a backup plan. For example, documents can be mailed, e-mailed as attachments, or faxed. If one method of delivery will not work, another might (such as CD-ROMs instead of streaming media), so it is important to allow time for a change in delivery method.

Delivery and Access

This category was identified in Gunawardena and McIsaac (2004) as "the way in which the technology distributes the learning material to distance learners and the location to which it is distributed: homes, places of work, or local study centers. Student access to technologies in order to participate in the learning process is an important consideration" (p. 427). In other words, delivery and access refer to the ease with which learning materials can be accessed and used (Verduin & Clark, 1991).

An underlying consideration is the access of quality education for those who would otherwise be denied the opportunity or who could not otherwise participate (Sloan Consortium, 2003; Moore & Kearsley, 1996). Access to the underserved is not a new concept, but the opportunities for reaching these students have improved dramatically over the years, thanks to distance education.

Distance education provides life-long learning potential for working adults (Gunawardena & McIsaac, 2004) and "contributes to the larger social mission of education and training in a democratic society" (ADEC, 2004). The Sloan Consortium (2003) even states as its purpose that "education will become a part of everyday life, accessible and affordable for everyone, anywhere, at any time, in a wide variety of disciplines" (p. 1).

The most common rationale for using distance education is to provide access to all those who wish to participate (Birnbaum, 2001; Verduin & Clark, 1991). "Distance education has enabled educators to overcome geographical, temporal, or psychological barriers to participation in education" (Verduin & Clark, 1991, p. 104). Reaching beyond the campus requires the integrated efforts of faculty, staff, and administrators. Again, a "systems

view" is advocated for more effective distribution of courses and educational materials (Willis, 1992; Moore and Kearsley, 1996).

Evaluation and Assessment

Perhaps the most valuable practices are those that are used regularly in the classroom: evaluation and assessment. All face-to-face courses are subject to review, in terms of student learning outcomes/achievement, retention, and faculty and student satisfaction. Distance education courses should meet the same standards as on-campus (accredited) courses and be consistent with the mission of the institution (Chiti, 2001; Lezberg, 1998; Phipps & Merisotis, 1999). "The level of congruence among the various learning environments should be so great as to allow students to move easily from one environment to another" (Chiti, 2001, p. 7).

Evaluation of distance education programs is therefore critical. Evidence of effectiveness can be measured using specific standards, just as in face-to-face environments (Phipps & Merisotis, 1999; Verduin & Clark, 1991). Furthermore, providing continuous assessment of students' work (by giving critical feedback, not only on assignments but also on the students' progress in the course and providing redirection as necessary) ensures that students are progressing toward their educational goals (Moore & Kearsley, 1996; Verduin & Clark, 1991).

In their meta-analysis of studies comparing face-to-face student satisfaction with distant student satisfaction, Allen, Bourhis, Burrell, and Mabry (2002) indicated there was a slight preference for the face-to-face format over the distance education format, but there was little difference in satisfaction levels between face-to-face and distance education students. "In general, the replacement of traditional face-to-face education with distance education

technology should demonstrate little decline in student satisfaction with the quality of the educational process" (p. 8).

The Sloan Consortium web site shows that in surveys, interviews, and other assessments, student satisfaction in distance education is at least equal to face-to-face student satisfaction. Furthermore, learning effectiveness is shown to be at least as good, and faculty members are satisfied (as evidenced by repeat teaching of distance education courses) (Sloan Consortium, 2003). Barkhi and Brozovsky (2000) showed that distance education students perform as well as face-to-face students, except when group work in involved.

These results are important to an institution's administration, as they help ensure that the same quality of teaching in distance courses is being practiced as in face-to-face courses and that learning effectiveness is just as good (Sloan Consortium, 2003). Making evaluation results available lets students and potential students know that courses offered at a distance are of the same quality as face-to-face instruction (Lezberg, 1998).

Summary

Regardless of whether there is a significant difference or not, effective teaching at a distance seems to be similar to good practices when teaching face-to-face. In addition to the practices listed by Chickering and Gamson (1987), distance teaching requires planning and preparation for the effective delivery and access of a course, as well as specific standards for evaluation and assessment.

The most effective practice is the use of multiple levels of interaction among and between the learners, instructor, learning materials, and learning interface. Interaction has been shown to increase student and faculty satisfaction, improve student motivation and

retention, reduce student anxiety, and improve student learning outcomes. Moore and Kearsley (1996) may have summed it up best:

> It seems more reasonable to conclude that (1) there is insufficient evidence to support the idea that classroom instruction is the optimum delivery method; (2) instruction at a distance can be as effective in bringing about learning as classroom instruction; (3) the absence of face-to-face contact is not in itself detrimental to the learning process; and (4) what makes any course good or poor is a consequence of how well it is designed, delivered, and conducted, not whether the students are face-to-face or at a distance (p. 65).

Based on the categories in this review, a survey was created and distributed to faculty at Iowa State University. The goals of the survey were to assess faculty knowledge and actual use of good practices in distance education and to compare best practices between face-to-face and distance teaching. The next section describes the methodology of the survey.

CHAPTER 3

METHODOLOGY

The purpose of this study was to design an instrument to provide information about faculty beliefs and practices in effective delivery of distance courses. This chapter describes the research methodology and procedures used in the study.

Instrument

Questions for the pilot survey were identified in the review of the literature as recommended effective practices for teaching at a distance. The questions were constructed and organized based on these categories in the review of the literature: activity, cooperation, interaction, expectations, responsibility, planning and preparation, delivery and access, and evaluation and assessment. Several questions were asked for each category, as were demographic questions.

Four types of questions were used: four-point Likert-scale (strongly disagree to strongly agree), open-ended, single-answer, and multiple-answer questions ("select all that apply"). The questions were meant to collect demographic information, determine if faculty practices match faculty beliefs, and compare practices used in distance teaching with practices used in face-to-face teaching.

In the literature, for example, encouraging interaction between students was identified as an important factor of effectiveness for distant courses. In the survey, faculty were asked to rate on a four-point Likert scale their level of agreement with the statement, "It is important to encourage interaction/collaboration between [distant] students." They were then

asked if they *do* encourage interaction/collaboration between their distance education students. A follow-up question then asked what tools faculty provide to students to encourage interaction/collaboration. The respondents were to check all the tools they provide, such as email, chat rooms, discussion boards, etc.

Before distributing the survey to the pilot group, the survey was evaluated by a few faculty members and Ph.D. candidates at Iowa State University. Their main comments had to do with organization of the survey.

It was suggested that demographic questions be placed at the end of the survey, because the thought was that respondents would be more likely to finish a survey as the questions become easier to answer. This change was made in the survey.

Another suggestion was to group all quantitative questions together and all qualitative questions together. Since the survey had already been organized around the categories from the review of the literature, it was decided not to change the survey in this way.

Pilot survey delivery

The pilot draft of the survey was administered to a group of peers, Ph.D. and master's candidates in the Curriculum and Instruction graduate program at Iowa State University. Based on their comments, the survey was revised multiple times before the final draft was completed.

Many of the respondents' observations and suggestions also dealt with wording and organization of the survey. Questions about student perceptions were removed, as faculty could only speculate on the students' viewpoints. Questions about student satisfaction were modified as well. Instead of asking if they thought students were satisfied with the course,

faculty were asked to base their ratings of students' satisfaction on course evaluations, surveys, or personal experiences.

The pilot participants felt that questions needed to address every type of distance educator: first-timers, experienced teachers, those with small classes, those with large classes, etc. Furthermore, wording had to be used that would be universally understood. One pilot participant commented that it was not clear whether the questions were only about distance education, face-to-face, or both. To correct this, a sentence was added to the welcome page of the survey, indicating all questions were about distance courses and students unless otherwise indicated.

The final survey

The final instrument for this study was a web-based survey consisting of 51 questions. A web-based program called SurveyMonkey was used to create and deliver the survey. SurveyMonkey allows for delivering surveys in a personalized email message (each email can be addressed specifically to the person receiving it) with a link to the online survey.

As part of its services, SurveyMonkey collected the data and archived it on its server. The data could then be accessed and exported for analysis into a spreadsheet, database, or common statistical software package. SurveyMonkey kept track internally of who had or had not responded (or those who had declined to participate), so reminders could then be sent only to those who had not yet responded (those marked "no response"). Those who did not wish to participate were able to opt out by clicking a link at the bottom of the email.

Data Collection

The data collection process occurred over the course of about four weeks, November 14 through December 9, 2005. The first email was simply an introductory message to all subjects on the list. This message informed participants that they would receive a survey, the reasons for wanting their participation, and their rights as a participant. Each email was personalized ("Dear Dr. Thompson"). After this first email went out, 20 messages "bounced back" (emails were not valid and were returned unread). Eight email addresses were corrected, thus bringing the total sample population to 220. The next day, an email with a link to the survey (and repeating participants' rights) was sent.

Two weeks later, the subjects who had not responded were sent a reminder email with a link to the survey. Those who had responded or declined were not emailed again. The final reminder was sent during the fourth week. In the end, 140 responses were collected, for a response rate of just below 64%.

SurveyMonkey automatically assigned numbers to each Likert scale answer, so Strongly Disagree was assigned 1 and Strongly Agree was assigned 4.

Survey Methods

A blended method was used to collect data. A four-point Likert scale (Strongly Disagree to Strongly Agree) was used to collect quantitative data, and qualitative data were collected through open-ended, multiple choice, and single-answer questions. In order to assure that questions were not inadvertently skipped, the survey was set up in such a way as to prevent the subjects from continuing to the next question before answering the previous

question. However, this violated the participants' rights (the option not to answer some questions). To solve this problem, the Likert scale included a fifth option, No Opinion, and these responses would later be thrown out. Those who chose No Opinion were in effect choosing not to answer the question, so it could be treated as a non-response. This option was also made clear at the beginning of the survey (see Appendix B).

Data Organization

Data were exported from SurveyMonkey into a spreadsheet. All cell values were exported as numerical values. The data were organized in Microsoft Excel, where each question was given its own column and responses were automatically separated (delimited) into rows and columns.

Each Likert item was given a separate row. For example, for any Likert question, the answers Strongly Disagree, Disagree, Agree, and Strongly Agree were each put into separate columns (along with a column for non-response) and coded 1, 2, 3, and 4, respectively (5 for non-responses). Other non-Likert questions were similarly coded and separated in Excel. For example, on the question of gender, Male was coded 1, Female was coded 2, and non-responses were coded 3.

The data were then formatted for import into SPSS. For questions in which respondents were able to pick only one answer, the data could be combined into one column in Excel. To do this, a blank column was created behind each question and descriptively labeled. The function "concatenate" was used to combine the values from the separate columns into one column (the blank one created). These combined columns could then be

copied into a new Excel sheet using "Paste Special," and checking the "values" box. "Paste Special" pastes only the combined data without the concatenate function. (Using "Paste" would have resulted in the data not transferring, as this function refers to specific cells from the original Excel sheet.)

Once all data were combined and pasted into the new spreadsheet, they were imported into SPSS, where the following statistical procedures were used: Cronbach's alpha for reliability, descriptive statistics for demographics and crosstabulations and t-tests for comparing beliefs with practices.

Summary

This chapter described the subject population, creation and delivery of the pilot and final instrument, and collection, organization, and analysis of the data. A convenience sample from Iowa State University was identified for the subject population. The survey was designed based on categories identified in the review of the literature, and then tested on a pilot group. Suggestions and comments from the pilot group led to multiple revisions until the final survey was administered to the subject population. Data were collected using SurveyMonkey, then organized in Microsoft Excel and analyzed using SPSS. The next chapter will describe the results of the final survey.

CHAPTER 4

RESULTS

A summary of the results from this study is included in this chapter, beginning with methods to predict the reliability of the survey. The demographics section summarizes characteristics of the respondents, and the descriptive statistics section compares faculty beliefs with practices, with some comparisons of distance teaching practices versus face-to-face practices. The last section examines individual correlations and predictors of faculty satisfaction.

Reliability

In order to determine the reliability of the survey, Cronbach's alpha was used to compute internal consistency estimates of the Likert-scale questions. Thirty-one of the 51 questions in the survey could be included in this analysis. The alpha on standardized items was .800. (See Figure 1.)

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.788	.800	31

Figure 1. Results of item analysis for Likert-scale items.

According to the publication *Calculating, Interpreting, and Reporting Cronbach's Alpha Reliability Coefficient for Likert-Type Scales*, "an alpha of .8 is probably a reasonable goal" (Gliem and Gliem, 2003, p. 87). In their article, Gliem and Gliem also cite *SPSS for Windows Step by Step: A Simple Guide and Reference* (George and Mallery, 2003), which gives a rule of thumb that a Cronbach's alpha of greater than or equal to .8 is considered good (p. 231). These references would indicate satisfactory reliability with the Likert-scale items in this study.

Demographics

Of the 220 surveyed, 140 responded, for a response rate of 63.64%. The typical respondent was a tenured male professor, around the age of 51, having taught in higher education for approximately 17 years, and having taught an average of 5 courses at a distance. The ages ranged from 32 to 72. The median age was 52, very close to the mean age of 51. Most of the respondents, around 69%, were male.

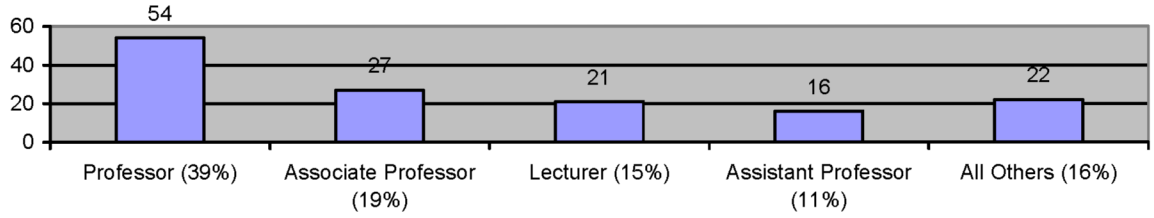
The number of years spent teaching in higher education ranged from 1 to 43. The median number of years was 16, also very close to the mean of 17. The median number of courses taught at a distance was 3, with a mean of 5. The number of distant courses taught ranged from 1 to 30 (single courses taught multiple times not included).

Most respondents were tenured (61%). Twenty-seven percent said they were non-tenured, and 12% said they were tenure-track. Seventeen teaching ranks were reported. The most common ranks, as seen in Table 1, were professor (39%), associate professor (19%), lecturer (15%), and assistant professor (11%). Other ranks ranged from lab coordinators and

doctoral candidates to university and distinguished professors. The majority of respondents (approximately 78%) had never experienced a distance education course as a student.

Table 1.

Teaching ranks reported (actual number of responses).



Non-Response Error

There are varying opinions about adequate response rates to correct for non-response error. In an excerpt of *Survival Statistics* (2004), David Walonick writes:

> One of the most powerful tools for increasing response is to use follow-ups or reminders. Traditionally, between 10 and 60 percent of those sent questionnaires respond without follow-up reminders. These rates are too low to yield confident results, so the need to follow up on nonrespondents is clear. (p. 16).

After all follow-up requests were made the response rate for this survey was 64%. By the standards listed above, this rate could be considered adequate enough to account for non-response error. If a more rigorous test were wanted, Miller and Smith (1983) suggested a procedure called 'double dipping'. With this method, a random sample of non-respondents would be contacted and their answers compared to the respondents' answers. However for this study no such attempt was made to control for non-response error.

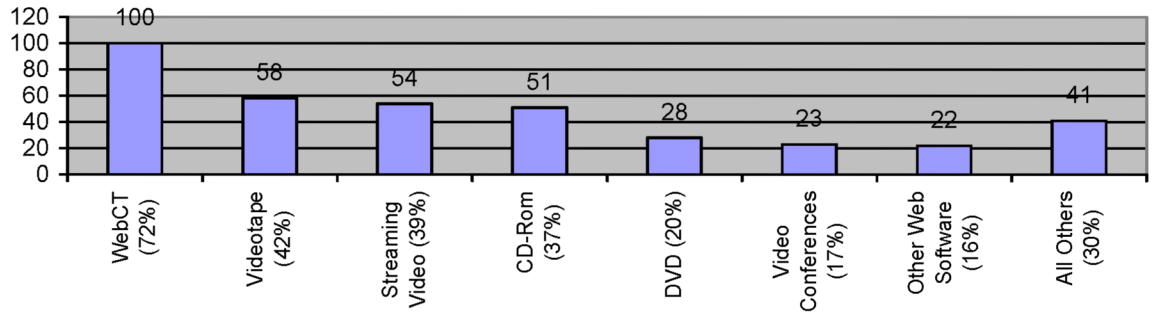
Delivery Modes Reported

Respondents were asked to select *all* of the methods used to deliver courses at a distance. (More than one response could be selected and space was made for open-ended responses.) The complete list of delivery methods that respondents identified can be seen in Appendix D. The most common responses are reported in Table 2.

Almost 72% indicated they use WebCT to deliver courses, as seen in Table 2. The other delivery methods selected most often included videotape (42%), streaming video (39%), CD-Rom (37%), DVD (20%), and video conferences (17%).

Table 2.

Delivery methods reported (actual number of responses).



Descriptive Statistics on Beliefs and Practices

For consistency, the descriptive statistics on beliefs and practices have been summarized in the same categories as in the review of the literature. Those categories were Activity, Cooperation, Interaction, Expectations, Responsibility, Planning and Preparation, Delivery and Access, and Evaluation and Assessment. Some categories were grouped

together (Interaction with Cooperation, and Expectations with Responsibilities) because they seemed to complement each other.

Activity

When asked if it is important to encourage interaction/collaboration between students, 87% agreed or strongly agreed that it is, and 77% of respondents reported that they encourage interaction in their distant courses.

A two-way contingency table (crosstabulation) analysis was conducted to evaluate whether faculty who believe in encouraging interaction actually do encourage interaction. The two variables were the beliefs (strongly disagree, disagree, agree, strongly agree) of the faculty, and the practices (yes, no) of the faculty. Beliefs and practices were found to be significantly different (Pearson χ^2 (3, N = 134) = 32.54, p = .000, Somers' d = .000). The proportions of faculty who did not encourage interaction who strongly disagreed, disagreed, agreed, and strongly agreed were 1.0, .64, .30, and .03, respectively. (See Figure 2.)

This crosstabulation shows that while faculty may believe that encouraging interaction is important, there is significant evidence that they do not necessarily practice encouraging interaction. This test also shows consistency in the way faculty answered these questions. Those who responded that they strongly disagreed that it is important to encourage interaction were also less likely to practice encouraging interaction and those who agreed or strongly agreed were more likely to encourage interaction.

Only 39% thought it was important to group students into communities of interest. Just under 16% indicated that they do group students into communities of interest in their distant courses. "Drawing out diverse perspectives [is] more important than creating communities of interest," was one comment.

Using problem-based learning activities was important to 92% of respondents. Only four respondents (3%) indicated they disagree that using problem-based learning is important in their distant courses. Eighty-seven percent indicated the use of problem-based learning activities in their distant courses.

Providing students with opportunities for developing higher-level thinking skills (such as analysis, synthesis, and evaluation) was important to 99% of respondents. Only one respondent disagreed with this statement. Over 94% of respondents answered that they provide opportunities for developing higher-level thinking skills for their distance education students.

Interaction and Cooperation

While group work was not regarded as an effective practice in most of the reviewed literature for delivery of distant courses, interaction was. In fact, it was the most commonly mentioned practice. This survey asked faculty about tools used for interaction, as well as the types and frequency of the different types of interaction: teacher-learner and learner-learner.

Tools for interaction. When asked to check all of the tools faculty provided to students for interaction, email was selected most often (87%), followed by threaded discussion boards (55%), chat rooms (32%), face-to-face meetings (30%), and telephone conferences (24%). Table 3 illustrates the tools selected. One respondent reported requiring distance education students to come to the first and last class of the semester. Another reported visiting distant sites on occasion.

EncInterB * EncIntD Crosstabulation

			EncIntD		
			Yes	No	Total
EncInterB	Strongly Disagree	Count	0	1	1
		Expected Count	.8	.2	1.0
		% within EncInterB	.0%	100.0%	100.0%
	Disagree	Count	4	7	11
		Expected Count	8.8	2.2	11.0
		% within EncInterB	36.4%	63.6%	100.0%
	Agree	Count	39	17	56
		Expected Count	44.7	11.3	56.0
		% within EncInterB	69.6%	30.4%	100.0%
	Strongly Agree	Count	64	2	66
		Expected Count	52.7	13.3	66.0
		% within EncInterB	97.0%	3.0%	100.0%
Total		Count	107	27	134
		Expected Count	107.0	27.0	134.0
		% within EncInterB	79.9%	20.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.541[a]	3	.000
Likelihood Ratio	33.563	3	.000
Linear-by-Linear Association	32.115	1	.000
N of Valid Cases	134		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .20.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Somers' d	Symmetric	-.437	.060	-5.554	.000
		EncInterB Dependent	-.610	.077	-5.554	.000
		EncIntD Dependent	-.341	.058	-5.554	.000

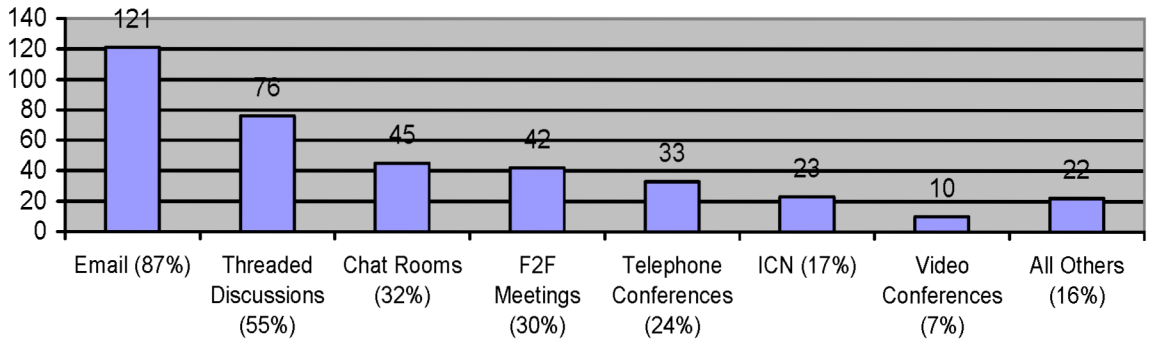
a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure 2. Results of crosstabulations analysis on beliefs versus practice of encouraging interaction.

Table 3.

Tools used for interaction (actual number of responses).



Teacher-learner. During an average semester, the majority of respondents (about 44%) reported spending an average of 3 to 4 hours per week outside of class time interacting with distance education students (via email, phone, in person, or other methods). Fifteen respondents (about 11%) indicated spending 11 or more hours per week.

When asked to compare the amount of time spent interacting with distance education students to time spent with face-to-face students, 43% reported spending more time interacting with their distance education students. Twenty-four percent reported the same amount of time spent interacting with their distance education students as with their face-to-face students, and 22% reported less time. The rest responded with "I do not know," "No opinion," or "I have only distance education students."

When asked if "office hours" (when distance education students know they can reach the instructor) are provided for distance education students, respondents were again almost equally split between those who selected "I respond when I can" (33%) and those who

reported having regular times set aside for interaction (37%). Ten percent reported occasionally having office hours, while almost 19% selected "Other." Open-ended comments ranged from "I respond instantly to every request" to "I have the goal of responding within 24 hours" to "Students can contact me any time by phone at work or at home." Most respondents indicate using email as the primary communication tool.

In response to the statement, "Providing prompt feedback to my students seems to improve their satisfaction with my courses," 100% of the respondents agreed or strongly agreed. Furthermore, 84% agreed or strongly agreed that distance education students seem satisfied with the level of teacher/student interaction, based on experiences, class surveys, or course evaluations. One respondent commented, "Frequent feedback—must keep students engaged in course."

Based on faculty experiences, class surveys, and course outcomes, 95% agreed or strongly agreed that interaction between teacher and student improves student achievement (such as grades or quality of work).

A two-way contingency table (crosstabulation) analysis was conducted to evaluate whether faculty who believe that interaction between teacher and student improves student achievement (such as grades or quality of work) actually report that their distance students achieve as much or more as their face-to-face students. The two variables were the beliefs (strongly disagree, disagree, agree, strongly agree) of the faculty, and the outcomes (less than, equal to, more than) reported by the faculty. Beliefs and outcomes were found *not* to be significantly different (Pearson χ^2 (4, N = 124) = 8.71, p = .069, Somers' d = .062).

The proportions of faculty who reported their distance students achieve less than their face-to-face students and who disagreed, agreed, and strongly agreed were .00, .04, and .19,

respectively (not one respondent strongly disagreed). The proportion of faculty who reported their distance students achieve as much as their face-to-face students and who disagreed, agreed, and strongly agreed were .33, .65, and .55, respectively. The proportion of faculty who reported their distance students achieve more than their face-to-face students and who disagreed, agreed, and strongly agreed were .67, .31, and .26, respectively. (See Figure 3.)

This crosstabulation shows that faculty believe that interaction between teacher and student improves student achievement, and that their distance education students achieve as much or more than their face-to-face students. This test also shows that even those who disagreed that interaction between teacher and student improves student achievement still reported that their distance education students achieve as much or more than their face-to-face students. A few who agreed or strongly agreed reported that their distance education students achieve less than their face-to-face students; however, faculty who believe that interaction is important were more likely to report their distance education students achieve as much as or more than their face-to-face students.

Learner-learner. Based on experiences, class surveys, and course outcomes, 65% reported that their students seemed satisfied with interaction among students. Later in the survey, about 80% indicated they agreed or strongly agreed that, generally in distance education, interaction between students does provide satisfaction for the students. Less than 1% disagreed, and the rest selected "No opinion." One respondent wrote, "Students do not seem too interested in interacting with each other. I threaded discussions, but did not get any responses." A few other comments reflected this same sentiment, such as, "I tried to encourage interaction among distance [ed] students, but they do not appear to desire the

AchieveB * AchieveD Crosstabulation

			AchieveD			
			Less than	Equal to	More than	Total
AchieveB	Disagree	Count	0	1	2	3
		Expected Count	.3	1.8	.9	3.0
		% within AchieveB	.0%	33.3%	66.7%	100.0%
	Agree	Count	3	44	21	68
		Expected Count	7.1	40.6	20.3	68.0
		% within AchieveB	4.4%	64.7%	30.9%	100.0%
	Strongly Agree	Count	10	29	14	53
		Expected Count	5.6	31.6	15.8	53.0
		% within AchieveB	18.9%	54.7%	26.4%	100.0%
Total		Count	13	74	37	124
		Expected Count	13.0	74.0	37.0	124.0
		% within AchieveB	10.5%	59.7%	29.8%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.712[a]	4	.069
Likelihood Ratio	8.727	4	.068
Linear-by-Linear Association	4.460	1	.035
N of Valid Cases	124		

a. 3 cells (33.3%) have expected count less than 5. The minimum expected count is .31.

Directional Measures

			Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Somers' d	Symmetric	-.163	.086	-1.867	.062
		AchieveB Dependent	-.159	.083	-1.867	.062
		AchieveD Dependent	-.167	.089	-1.867	.062

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Figure 3. Results of crosstabulations analysis on beliefs versus actual results on interaction to improve student achievement.

contact. For example, when I asked them to submit a paragraph about themselves to share with the class, only half responded."

Expectations and Responsibilities

When asked whether teachers should expect satisfaction from teaching at a distance, 88% agreed or strongly agreed that they should, and 78% agreed or strongly agreed that teaching at a distance does give them satisfaction.

Seventy-nine percent indicated that their departments should provide the resources necessary for delivering courses at a distance. Sixty-eight percent indicated that they actually received support from their department for distance teaching.

In the open-ended comment sections, many of the respondents expressed the desire for more support from their departments, the colleges, the university, or from the university's continuing education services. "I think distance education is an important aspect of what we do as educators, and it can be done very effectively. More resources need to be devoted to grow beyond the idealistic volunteers (like me) that we have now," wrote one respondent. Another wrote, "I believe that the university must shift more resources to distance [ed] in order to maintain enrollments and [I] want to be able to contribute to that effort." Another comment was, "While the department should provide some support, the Colleges and Continuing Education need to do more."

In response to the statement, "Before enrolling in a distance course, students should have adequate technical skills (such as word processing, the ability to use the Internet, etc.)," 93% of respondents agreed (39%) or strongly agreed (54%). And respondents agreed or

strongly agreed (90%) that their distance education students do seem to have the proper technical skills required for their courses.

Sixty-five percent thought students' deadlines for submitting assignments should be flexible, and a little over 71% indicated that the deadlines set for assignments in their distant courses are flexible.

A paired-samples *t* test was conducted to evaluate whether faculty who believe deadlines for assignments should be flexible for distance education students actually practice flexible deadlines. The results indicated that the mean for belief in flexible deadlines (M = 2.84, SD = .822) was significantly different than the mean for practice of flexible deadlines (M = 2.94, SD = .844, t = -2.190, p = .030). The standardized effect size index, d, was -.186. The 95% confidence interval for the mean difference between the two ratings was -.193 to -.010. (See Figure 4.)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	FlexDeadB	2.84	138	.822	.070
	NexDeadD	2.94	138	.844	.072

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	FlexDeadB - FlexDeadD	-.101	.544	.046	-.193	-.010	-2.190	137	.030

Figure 4. Partial results of the paired samples *t* test of beliefs versus practice in flexibility of deadlines.

This *t* test shows that more faculty report allowing flexible deadlines for course assignments for their distance education students than report that deadlines for distance education students *should* be flexible. In other words, even though faculty may not necessarily want to provide flexible deadlines for assignments for their distance education students, they *are* providing flexible deadlines.

Planning and Preparation

Regarding the technology primarily used to deliver distant courses, 95% of respondents said they were generally comfortable with it. When asked about training, 66% said they had received adequate training on how to use the technology, yet 66% later indicated they had mostly learned how to use the technology themselves.

Sixty-nine percent agreed or strongly agreed that they had enough time to familiarize themselves with the technology before beginning their distant course. Five percent of respondents strongly disagreed. One wrote, "Perhaps a short course on some distance [ed] class content delivery techniques could be made available to the instructors."

Sixty-one percent indicated receiving technical support when designing their course, while 5% received none. One respondent wrote, "Technical support needed for developing a web course is far greater than for delivering the course," while another wrote, "Some faculty need less support once the course is up and running."

Almost 67% reported spending more time developing their distant courses than developing their face-to-face courses. Fourteen percent spend the same amount of time, 4% report spending less time. Four percent of respondents reported having only distant courses. The rest (11%) did not know or had no opinion. One respondent wrote, "Distance learning takes a lot of time and passion, and you cannot be nervous about technology!" Another wrote

that it took much more time to develop the distant course because, as this respondent put it, "there was no convenient text and I had to create all the course materials myself." (A few respondents reported in the open-ended comments that they were not responsible for developing their courses. Wrote one, "I did not create the course, but only took over teaching responsibilities once the course was established.")

Ninety-four percent of respondents indicated making changes to their teaching materials to make them suitable for teaching at a distance. Less than 4% of respondents indicated that they did not make changes.

Delivery and Access

Seventy-five percent agreed that they were familiar with teaching methods appropriate to distance teaching, and 67% indicated they did *not* use the same teaching methods in their distant classes as in their face-to-face classes.

A paired-samples *t* test was conducted to evaluate whether faculty who believe they are familiar with methods appropriate to teaching at a distance use the same methods to teach at a distance as they use in face-to-face teaching. The results indicated that the mean for familiarity (M = 2.98, SD = .640) was significantly different than the mean for using the same methods (M = 2.16, SD = .729), $t = 9.593$, $p = .000$. The standardized effect size index, *d*, was .848. The 95% confidence interval for the mean difference between the two ratings was .651 to .990. (See Figure 5.)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	MethFam	2.98	128	.640	.057
	SameMeth	2.16	128	.729	.064

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	MethFam - SameMeth	.820	.967	.086	.651	.990	9.593	127	.000

Figure 5. Partial results of the paired samples *t* test of beliefs versus practice in methods for teaching distance education.

This *t* test shows that faculty who report that they are familiar with teaching methods appropriate to distance teaching are more likely to use different teaching methods at a distance than they do in their face-to-face courses. Faculty who are *not* familiar with appropriate teaching methods in distance teaching are more likely to use the same teaching methods at a distance as they use in their face-to-face courses.

When asked if courses should be available to students any semester that they want them, the majority (60%) disagreed or strongly disagreed. Only about 10% strongly agreed. Later in the survey, over half of the respondents indicated that their courses *are* available when their students want them.

A paired-samples *t* test was conducted to evaluate whether faculty who believe courses should be available to students when they want them also indicate that their courses are available when students want them. The results indicated that the mean for those who believe courses should be available when students want them (M = 2.33, SD = .911) was

significantly different than the mean for faculty who say their courses are available when students want them (M = 2.74, SD = .729, t = -4.432, p = .000). The standardized effect size index, d, was -.417. The 95% confidence interval for the mean difference between the two ratings was -.602 to -.230. (See Figure 6.)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	AvailableB	2.33	113	.911	.086
	AvailableD	2.74	113	.729	.069

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	AvailableB - AvailableD	-.416	.998	.094	-.602	-.230	-4.432	112	.000

Figure 6. Partial results of the paired samples t test of beliefs versus practice in the availability of courses to distance education students.

This t test shows that the majority of faculty surveyed disagreed or strongly disagreed that courses should be available when students want them, but they report that their course *are* available when students want them. In other words, even though faculty do not believe courses should be available when students want them, they report that they are.

One hundred and thirty-two respondents (94%) agreed or strongly agreed that technical support should be provided to faculty teaching at a distance. Four respondents (3%) believed or strongly believed that it should *not* be provided. The rest had no opinion. When asked if they have good access to technical support, most agreed or strongly agreed (81%).

About 62% said they needed up to two hours of technical support per week to deliver a single distant course. One respondent indicated needing 9 to 11 hours and one indicated needing more than 11 hours per week. About 92% felt their primary delivery systems were generally reliable.

A paired-samples *t* test was conducted to evaluate whether faculty who believe technical support should be provided to faculty teaching at a distance also indicate that they have good access to technical support. The results indicated that the mean for those who believe support should be provided (M = 3.59, SD = .578) was significantly different than the mean for faculty who say they have good access to technical support (M = 3.19, SD = .730, *t* = 6.088, *p* = .000). The standardized effect size index, *d*, was .528. The 95% confidence interval for the mean difference between the two ratings was .274 to .538. (See Figure 7.)

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	TechSuppB	3.59	133	.578	.050
	TechAccess	3.19	133	.730	.063

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	TechSuppB - TechAccess	.406	.769	.067	.274	.538	6.088	132	.000

Figure 7. Partial results of the paired samples *t* test of beliefs versus actual technical support reported.

This *t* test shows that the majority of faculty believe technical support should be provided to faculty teaching at a distance, but they are less likely to report having access to good technical support. Fewer faculty feel they actually have good access to technical support than believe they *should* have good access to technical support.

Respondents were almost equally split when asked whether they know their distance education students well: about half agreed or strongly agreed and about half disagreed or strongly disagreed.

Evaluation and Assessment

Regarding learning outcomes (such as grades, quality of work, improvements in performance, etc.), 53% of respondents reported their distance education students achieve as much as their face-to-face students. Twenty-eight percent said their distance education students achieve less, 9% said they achieve more, 10% selected no opinion, other, or that they only have distance education students. "Distance [education] students in my courses do better because they are older and more mature," was one comment.

Based on experiences, course evaluations, or class surveys, 68% indicated their distance education students were as satisfied (54%) as or more satisfied (14%) than their face-to-face students (18% said less, 14% selected no opinion, other, or that they only have distance education students). According to one respondent, "Student surveys have indicated our students prefer the quality of education experience in face-to-face classes, but like the convenience of ICN or WebCT. All our students work full time and can only attend classes in the evening or Saturday."

When their distance education students fill out class evaluations, they generally give equal ratings as the face-to-face students, according to 48% of respondents (15% reported higher ratings, 12% reported lower ratings, 25% selected no opinion, other, or that they only have distance education students). One respondent wrote that the distance education students give "higher ratings than on-campus" but the respondent further explained that "'working adults taking the class are more appreciative of being able to take and having access to the course than on-campus students."

Many respondents wrote comments such as, "[It is] difficult to get distance education students to fill out evaluations." In the open-ended sections, respondents also wrote comments such as the following: "No evaluations given"; "I haven't seen the ratings. I would like to though"; "I need to give evaluations"; "I would like assistance with collecting evaluations"; and "The [evaluation] forms are different. In fact I never see the forms for the distance [ed] students."

General Comments

When asked to provide additional comments at the end of the survey, respondents addressed several other areas that were not included in the survey. One respondent commented about retention rates of distance education students, writing, "although the distance students test out about the same as the in-class students, they have two times the drop rate and eight times the 'incomplete' rate as in-class students." This could be related to issues of satisfaction for some distance education students. As seen in the review of the literature, student satisfaction seems to hinge on interaction and activity. "Live" human instructors are needed to ensure quality, meet students' emotional needs, and reduce students'

anxiety, which is often caused by separation and fear of technology (Birnbaum, 2001; McIsaac & Gunawardena, 2004; Zhao et al., 2004).

More than one respondent commented on how their distance education students tend to be more mature than their face-to-face students, or on how distance education students need more maturity in order to do well in their courses. "I feel that the quality of my distance education students' experience varies considerably by their learning style and commitment…even more so than that of my on-campus students. The [distant] environment requires considerable maturity and the ability to learn from reading," wrote one.

A few respondents took the opportunity to express their concern about distance education at Iowa State University. One comment was, "I think distance education via the web is a totally lower quality experience for students, but especially for graduate students. We lower our standards and soon it reaches to all levels." Another wrote, "ISU is way behind in distance education (online and otherwise). They are missing the boat! In fact, they've MISSED the boat. Others are doing a far better job and attracting the students of this century. Too many…who think their way, the way it's always been done, is the only and right way. Tough break for the future of ISU!"

While there may be concerns and possibly dissatisfaction with distant teaching at ISU, the next section describes the many reasons faculty gave for wanting to teach or continue teaching at a distance.

Motivations for Teaching at a Distance

Respondents were asked to select all of their motivations for teaching at a distance. The ability to teach working adults and providing access for the underserved were the top two reasons for teaching distance courses. One respondent wrote, "Most of our graduate courses have a [distance education] overlay to make it possible for off-campus, part-time students to be in the program." Another wrote, "Many students indicate they like the distance class because they have no other way they could get the training. Most like to be able to work in 'motel rooms.'"

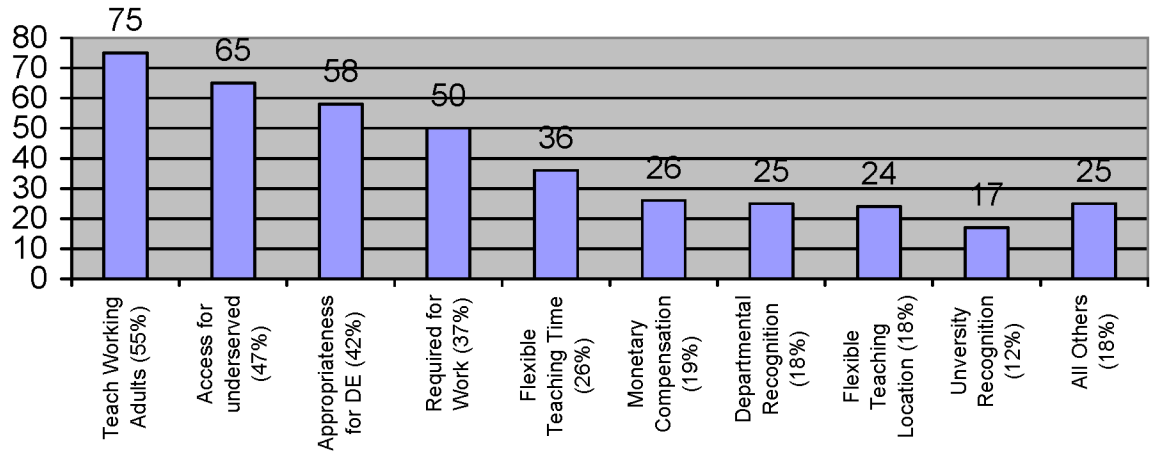
The appropriateness of some courses for distance education was another common answer to the question of motivation. About 12% indicated that distance teaching was required as part of their work, but less than 1% said they received release from regular (face-to-face) teaching duties. Table 4 shows the motivations that ISU faculty selected.

Almost 65% of respondents indicated that they had received some form of additional compensation for teaching at a distance. Thirty-five percent indicated they received no additional compensation. This deterred some faculty from repeat teaching at a distance, as one comment indicated: "I stopped doing the web courses…because the compensation was not worth it. My department credited 1/2 credit per web course, when the amount of work required was significantly greater than for a lecture class. People are often shocked when told this."

Of those who *had* received additional compensation, 62% said they had received staff assistance of some kind. Two respondents indicated that income generated from courses helps pay for travel, hardware, software, and support needed, but otherwise courses are

Table 4.

Motivations for teaching at a distance (actual number of responses).



unsupported by their departments. Often that income is not realized by faculty until after the semester is complete. Another wrote, "I assume that my willingness to [teach at a distance] helps me get better annual raises than a faculty member who will not try new technology or teaching methods."

Other reasons listed in open-ended answers included seeking to be a team player to facilitate student success; for the challenge; to bring international perspectives into the classroom; and the opportunity to work from home.

Summary

This chapter described the reliability of the survey administered, as well as the demographics, delivery modes, and motivations identified by faculty for teaching at a distance. The categories from the review of the literature were summarized using descriptive

statistics, crosstabulation, and paired-samples *t* tests. Those categories were activity, cooperation, expectations, responsibility, interaction, planning and preparation, delivery and access, and evaluation and assessment.

This data analysis provided insight into the respondents' beliefs and practices in delivering courses at a distance, and served to compare practices used at a distance with practices used in face-to-face teaching. These results show that in general:

- ISU faculty members in this study believe that distance education students achieve as much as or more than their face-to-face counterparts.
- ISU faculty members in this study believe that distance education students are as or more satisfied than their face-to-face counterparts.
- Pedagogy in distance teaching is important to ISU faculty members in this study and they strive to use effective practices.
- ISU faculty members in this study are satisfied with teaching at a distance.
- ISU faculty members in this study are comfortable with the technology they use to teach at a distance and have adequate technical support.
- ISU faculty members in this study spend more time developing distant courses than do face-to-face courses.
- ISU faculty members in this study spend the same amount or more time interacting with their distance education students as they do with their face-to-face students.

The next section will discuss the implications of the results, discuss the strengths, weaknesses and limitations of the study, and provide guidance for potential future research.

CHAPTER 5

CONCLUSIONS

While a review of the literature showed that there are effective practices for teaching at a distance, there was little evidence showing whether faculty who teach at a distance are aware of or use these practices. The literature review also pointed to the need for a comparison of distance and face-to-face teaching practices.

This study began in the fall of 2005 with a convenience sample of faculty at Iowa State University (ISU) who had taught at a distance between the spring of 2001 and the spring of 2005. To collect data, an on-line survey was used over a four-week period. Ultimately, a response rate of almost 63% was obtained.

The study was designed to gauge ISU faculty beliefs and practices about effective teaching in distance education, as well as to compare practices used at a distance with practices used in face-to-face settings. The survey was based on categories found in the review of the literature, and data were collected, organized, and analyzed based on those categories. The survey contained both multiple choice and open-ended questions.
The next sections in this chapter recap the reviewed literature, discuss the results of the survey and ISU faculty motivations for teaching at a distance, show the limitations of the study, and provide recommendations for distance educators, administrators, and researchers.

Recap of Reviewed Literature

For some time, educators believed that there was no difference between teaching at a distance and teaching face-to-face. Researchers concluded that any delivery method can be effective if appropriately applied. In later years, research emerged that showed that there was

a difference between teaching at a distance and teaching face-to-face, sometimes favoring distance teaching and other times favoring face-to-face teaching. These researchers concluded that effective teaching practices must be applied in distance education, just as in face-to-face education.

Researchers recommended that the guidelines for effective teaching in either distance or face-to-face settings might come from Chickering and Gamson's Seven Principles for Good Practice in Undergraduate Education (1987). For this study, their "six powerful forces" in education were used to inform the search through the literature. Those included activity, cooperation, interaction, expectations, responsibility, and diversity. Several other categories that emerged from the literature were also included: planning and preparation, delivery and access, and evaluation and assessment. With these categories in mind, a search through the literature yielded many studies identifying effective practices for teaching at a distance.

The survey for this study was developed based on these effective practices. The results of the survey are summarized in Chapter 4. A comparison of the results with the reviewed literature is next, followed by a description of what motivates ISU faculty to teach at a distance. Finally, the limitations of the study are discussed, along with recommendations for distance educators, administrators, and researchers.

Discussion of Results

The typical respondent to the survey was a tenured male professor, around 51 years of age, who had taught in higher education for about 17 years and had taught about 5 distant courses. The most common way for the typical respondent to deliver those distant courses

was with WebCT. Also, the typical respondent had never experienced a distant course as a student.

The respondents' answers to the survey questions and how they compare to the effective practices in the reviewed literature are examined next. For consistency, the results are organized and discussed in the same categories as in Chapter 4: Activity, Interaction and Cooperation, Expectations and Responsibilities, Planning and Preparation, Delivery and Access, and Evaluation and Assessment.

Activity

ISU faculty reported in the survey that in their distance education courses, they believe in and promote higher-level thinking skills and they believe in and use problem-solving activities. The literature on distance education promotes these as effective practices as well. Learners must be actively engaged in the course through the promotion of higher-level thinking skills, problem-solving activities, and the encouragement of interaction (ADEC, 2004; Bernard, 2004; Birnbaum, 2001; Chiti, 2001; Phipps & Merisotis, 1999; Moore & Kearsley, 1996).

Though ISU faculty surveyed indicated a strong belief in encouraging interaction between students (87%), a crosstabulation of their beliefs with their actual practices did show significant evidence of a difference (beliefs rating higher than practices). This is not to say that the ISU faculty surveyed do not encourage interaction between students, as 77% reported that they do. Rather, this indicates that while ISU faculty believe it is important to encourage interaction, they are not necessarily able to do so.

The results also show that ISU faculty surveyed neither believe group work is good practice in distance teaching nor practice it themselves. Grouping students into communities

of interest and encouraging interaction among students help improve students' achievement and attitudes toward learning, but it is not always easy to get students to participate (ADEC, 2004; Bernard et al., 2004). While some of the literature promotes this practice, other research acknowledges the difficulty of facilitating group work, and some studies show that group work might actually be a hindrance to student achievement (Barkhi & Brozovsky, 2000; IHEP, 2000).

The results from this section of the survey and the literature concerning activity in distance education are in agreement. The ISU faculty surveyed know which activities are effective and strive to implement them.

Interaction and Cooperation

Interaction was most often mentioned in the literature as a key to effective delivery in distant courses. This is why more questions were asked in this category than any other. ISU faculty were asked to list what tools they use to interact with their students, as well as the types and frequency of their interactions. They were also asked to compare interaction with their distance education students to interaction with their face-to-face students.

It might not be surprising to learn that email was the most widely used tool that ISU faculty listed. Even threaded discussion boards and chat rooms were rated more frequently than face-to-face meetings and telephone conferences. With email, faculty can provide feedback to their students at any hour of the day or night.

The literature on interaction in distance education emphasized that instructors should be timely in their interactions with students and that the interaction should be meaningful and appropriate (ADEC, 2004; Birnbaum, 2001; McIsaac & Gunawardena, 2004; Phipps & Merisotis, 1999; Sloan Consortium, 2003). The responses indicate that ISU faculty spend

about 3 to 4 hours per week outside of class interacting with students. (Fifteen respondents reported spending 11 or more hours per week on interaction.) The majority of ISU faculty surveyed reported spending as much or more time interacting with their distance education students than with their face-to-face students. Many ISU faculty provide virtual "office hours," when distance education students are assured of contact.

The literature further indicated that interaction provides distance education students with satisfaction and affects their achievement (Roblyer & Wiencke, 2003). The results of this section of the survey showed that ISU faculty are spending the same amount or more time interacting with their distance education students as with their face-to-face students. ISU faculty indicated their belief that interaction positively affects students' satisfaction and achievement, and they also reported (based on experiences or course evaluations) that their distance education students do indeed seem as satisfied or more satisfied than their face-to-face students, and that their distance education students achieve as much or more than their face-to-face students.

The results from the survey support the literature. The ISU faculty surveyed work to interact with their distance education students as much as or more than their face-to-face students. Their distance education students seem to achieve as much as or more than their face-to-face students and are as satisfied or more satisfied.

Expectations and Responsibilities

Although the ISU faculty surveyed expressed the desire for and expectation of more support from their departments, their colleges, the university, or Continuing Education services, almost 80% reported that they were satisfied with teaching at a distance, and almost 70% reported that they received departmental support to deliver their distant courses. While

ISU faculty may not get as much departmental support as they want, they still find distance teaching to be satisfactory, possibly leading to repeat teaching of distant courses (Sloan Consortium, 2003). Respondents are not quite as satisfied as they indicated they thought they should be, but they are satisfied nevertheless. And, as will be seen in the next few sections, ISU faculty did indicate having enough technical support, an element that is emphasized in the literature.

The longer instructors teach at a distance, the more familiar and comfortable they should be with the technology (Moore & Kearsley, 1996; Verduin & Clark, 1991; Zhao et al., 2004). The faculty at ISU who responded to the survey indicated that they feel comfortable with the technology. Almost 95% reported that they were comfortable, and many indicated learning how to use the technology themselves.

Planning and Preparation

When developing courses for distant delivery, instructors do not always consider that it most likely will take much more preparation time than do face-to-face courses. The literature recommends allowing more time than instructors might think they need in order to ensure the quality of the course design and learning materials (Bernard et al., 2004; Birnbaum, 2001; Chiti, 2001; Verduin & Clark, 1991). More than half of the respondents in this study indicated spending more time developing their distant courses than their face-to-face courses, and almost all respondents reported making changes to their teaching materials to make them suitable for their distant courses. More than half also reported having technical support when designing their courses. And when it came to the technology used in their courses, most respondents felt they had enough time to familiarize themselves with the technology.

The results from this section of the study did not show an overwhelming confidence on the part of the ISU faculty in terms of technical ability and self-reliance when using the technology to deliver courses at a distance. However the results showed that ISU faculty, despite wanting more technical support, generally feel that the support they do receive is adequate, and their level of comfort with the technology is relatively high. They want more technical support even though they do not necessarily need it.

Delivery and Access

When delivering a course at a distance, the systems being used should be reliable (Phipps & Merisotis, 1999), and almost all ISU faculty surveyed report that, in general, the systems they use to deliver courses at a distance are reliable. When asked if technical support should be provided during delivery of a course, ISU faculty surveyed believed it should be, but they were less likely to report that it actually is provided. While a few reported needing excessive amounts of technical support (11 hours or more per week), the majority reported needing only up to two hours of help per week. Support of faculty delivering courses at a distance is necessary, and ideally it should be provided continuously (Bernard et al., 2004; Zhao et al., 2004; Chiti, 2001). As in the planning and preparation stages, ISU faculty surveyed generally want more support than they are receiving, even though they might feel comfortable with the technology.

Those ISU faculty who reported familiarity with teaching methods appropriate to distance education were less likely to use the same methods for distance teaching that they use in face-to-face teaching. This indicates that the ISU faculty surveyed know there is a difference between distance teaching and face-to-face teaching, and that they are working to implement what they believe are effective practices in distance teaching.

The most common reason for delivering courses at a distance is so that anyone who wants to can participate (Birnbaum, 2001; Verduin & Clark, 1991). Many distance education students are working adults, and courses need to be available when students want them (Sloan Consortium, 2003). While ISU faculty surveyed do not generally believe that courses should be available whenever their distance education students want them, they nevertheless report that they are available when the students want them. The difference in answers might be attributed to the way programs are structured. Students generally take courses for their program of study in order, as some courses are prerequisites for others. If students follow this structure, then courses might indeed be available when the students want them.

Overall, the responses to this section of the survey correspond to the literature. ISU faculty reported having access to technical support while delivering their courses, although they would prefer more if given the choice. ISU faculty surveyed also believe that their courses are available when distance education students want them.

Evaluation and Assessment

When delivering courses at a distance, there should be no difference in distance education students' outcomes or satisfaction. Distance education students should perform as well as face-to-face students, and student satisfaction should at least be equal to that of face-to-face students (Allen et al., 2002; Sloan Consortium, 2003; Barkhi & Brozovsky, 2000).

Many ISU faculty expressed frustration in getting distance education students to fill out course evaluations. Some even said they do not give out course evaluations. However, those who do reported that their distance education students gave ratings that were equal to or higher than those of their face-to-face students. Based on course evaluations, experiences, and/or class surveys, most ISU faculty surveyed believe their distance education students

- Achieve as much or more than their face-to-face students
- Are as or more satisfied than their face-to-face students

Some ISU faculty attributed these outcomes to the fact that most distance education students are working adults and therefore are more mature. Mature adults generally work harder and are more appreciative of having the opportunity to take courses.

Distant courses and programs must meet the same standards required in face-to-face courses and programs. They should also be consistent, in that students should easily be able to move between the distant and face-to-face environments with no difference in learning outcomes or satisfaction. Making results of course evaluations available to the public would help potential students know the quality of the course or program as well (Sloan Consortium, 2003; Chiti, 2001; Phipps & Merisotis, 1999; Lezberg, 1998).

According to the ISU faculty surveyed, courses being delivered at a distance at Iowa State University meet the guidelines described in the literature. Distant student achievement is on par with that of face-to-face students, and distant student satisfaction is at least equal to that of face-to-face students. Distance education students also give course ratings that are at least equal to those provided by face-to-face students.

Motivations for Teaching at a Distance

ISU faculty surveyed reported that they teach at a distance for a variety of reasons. Some indicated that they teach at a distance because their courses seem appropriate for distance education or that teaching at a distance was required as part of work. The most common reasons listed, however, were the opportunities to teach working adults and to provide access for the underserved. As seen earlier, these are also the most common

rationales listed in the literature for delivering courses at a distance (Birnbaum, 2001; Verduin & Clark, 1991).

Recognition (department or university), flexibility (time and location), and compensation (monetary, staff, or other resources) were not the main reasons given for teaching at a distance. While some ISU faculty do receive these things, it seems that more ISU faculty aim to serve the public and want to reach a broader audience.

Limitations

Probably the biggest limitations of this study are that the results are specific to Iowa State University. Results cannot be generalized to the larger population. An original survey such as this needs more than one run and redesign to demonstrate validity and reliability, and to avoid bias and error. Furthermore, the students' perspective was not examined. Good practices from the viewpoint of students may be very different from faculty viewpoints.

Recommendations

Now that the literature has been examined and the results collected, some recommendations can be made for the future. Distance educators, administrators, and researchers can use this study as a guide for developing effective practices and for further investigation into whether effective practices are being used in distance teaching.

For Distance Educators

This study demonstrates that if effective practices are implemented in distance teaching, the results will be positive. Achievement and satisfaction levels of distance education students will be at least equal to those of face-to-face students, and course ratings

by distance education students will be at least as high as those provided by face-to-face students.

Evidence has been provided that the most important factor in distance education is interaction. Distance education students need prompt, meaningful feedback and clear guidelines from their instructors. Providing it will reduce anxiety and isolation felt by some distance education students, and will provide motivation and greater satisfaction for all students in the class. It may also improve student achievement (ADEC, 2004; Bernard et al., 2004; McIsaac & Gunawardena, 2004; Zhao et al., 2004; Sloan Consortium, 2003; Birnbaum, 2001; Roblyer & Wiencke, 2003; Phipps & Merisotis, 1999; Verduin & Clark, 1991).

For Administrators

Faculty want and expect support at the departmental level. College and/or institutional support would be ideal. As seen by the results of this study, the ISU faculty surveyed state that while they are receiving support from their departments, they would like even more. The support needed is primarily in the form of training and technical assistance, but it might also include compensation or incentives of some kind.

Faculty who receive support have better attitudes toward distance teaching and are generally more satisfied. And those who receive technical support and training produce distance courses of better quality (Bernard et al., 2004; Gunawardena & McIsaac, 2004; Zhao et al., 2004; Sloan Consortium, 2003; Birnbaum, 2001; Phipps & Merisotis, 1999).

For Researchers

Because this survey is original to this study, it could serve as a pilot instrument for future research. Although the reliability of the survey was adequate, the scope of the survey

is broad. Future researchers might be inclined to look only at specific categories in the survey and expand on them. For example, interaction is widely cited in the literature and could be examined by the type of interaction (learner-instructor, learner-learner, learner-content, or learner-interface) or from the perspective of the student.

This study used a sample of convenience and cannot be generalized to a larger population. Therefore, future studies should take a more experimental approach. This could be done by randomly selecting participants or by conducting a survey before a distant course is delivered and again after the course has been delivered.

Finally, researchers could examine the opinions of distance education students on what are or are not good practices in distance teaching. Distance education students are often working adults or non-traditional students who may have very different needs than traditional face-to-face students.

Summary

In conclusion, this study provides evidence that there are effective practices for delivering courses at a distance, and that ISU faculty surveyed are generally aware of these practices and work to use them. ISU faculty who participated in this study

- Put more time into delivering courses at a distance than face-to-face courses
- Spend more time interacting with their distance education students than with their face-to-face students
- Want to reach working adults and the underserved
- Believe their distance education students achieve as much as or more than their face-to-face students

- Believe their distance education students are as satisfied or more satisfied than their face-to-face students
- Are generally familiar and comfortable with the technology they use in distance teaching
- Are generally satisfied with teaching at a distance

While the scope of this study is broad, perhaps the results will lead to a better understanding of effective practices in distance education, and further research to provide evidence that these practices truly are effective.

APPENDIX A

RUBRIC FOR ASSESSING INTERACTIVE QUALITIES OF DISTANCE LEARNING COURSES (ROBLYER AND WIENCKE, 2003).

RUBRIC DIRECTIONS: The rubric shown below has four (4) separate elements that contribute to a course's level of interaction and interactivity. For each of these four elements, circle a description below it that applies best to your course. After reviewing all elements and circling the appropriate level, add up the points to determine the course's level of interactive qualities (e.g., low, moderate, or high)

Low interactive qualities	1 - 7 points
Moderate interactive qualities	8 -14 points
High interactive qualities	15-20 points

Scale (see points below)	**Element #1 Social Rapport-building Activities Created by the Instructor**	**Element #2 Instructional Designs for Learning Created by the Instructor**	**Element #3 Levels of Interactivity of Technology Resources**	**Element #4 Impact of Interactive Qualities as Reflected in Learner Response**
Few interactive qualities (1 point)	The instructor does not encourage students to get to know one another on a personal basis. No activities require social interaction, or are limited to brief introductions at the beginning of the course.	Instructional activities do not require two-way interaction between instructor and students; they call for one-way delivery of information (e. g., instructor lectures, text delivery).	Fax, web, or other technology resource allows one-way (instructor to student) delivery of information (text and/or graphics).	By the end of the course, all students in the class are interacting with instructor and other students only when required.

Minimum interactive qualities (2 points each)	In addition to brief introductions, the instructor provides for one other exchange of personal information among students, e.g., written bio of personal background and experiences.	Instructional activities require students to communicate with the instructor on an individual basis only (e. g., asking/responding to instructor questions).	E-mail, listserv, bulletin board or other technology resource allows two-way, asynchronous exchanges of information (text and/or graphics).	By the end of the course, between 20-25% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).
Moderate interactive qualities (3 points each)	In addition to providing for exchanges of personal information among students, the instructor provides at least one other in-class activity designed to increase social rapport among students.	In addition to the requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and share results within their pairs/groups.	In addition to technologies used for two-way asynchronous exchanges of text information, chat room or other technology allows synchronous exchanges of written information.	By the end of the course, between 25-50% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).
Above average interactive qualities (4 points each)	In addition to providing for exchanges of personal information among students, the instructor provides several other in-class activities designed to increase social rapport among students.	In addition to the requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and share results with one another and the rest of the class.	In addition to technologies used for two-way, asynchronous exchanges of text information, additional technologies (e. g., teleconferencing) allow one-way visual and two-way voice communications between instructor and students.	By the end of the course, between 50-75% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).

High level of interactive qualities (5 points each)	In addition to providing for exchanges of personal information among students, the instructor provides a variety of in-class and outside-class activities designed to increase social rapport among students.	In addition to the requiring students to communicate with the instructor, instructional activities require students to work with one another (e. g., in pairs or small groups) and outside experts and share results with one another and the rest of the class.	In addition to technologies to allow two-way exchanges of text information, visual technologies such as two-way video or videoconferencing technologies allow synchronous voice & visual communications between instructor and students and among students.	By the end of the course, over 75% of students in the class are initiating interaction with the instructor and other students on a voluntary basis (i.e., other than when required).
Total for each:	_____ pts.	_____ pts.	_____ pts.	_____ pts.
Total overall:	_____ pts.			

APPENDIX B

INFORMED CONSENT EMAIL

Dear [Faculty name],

You have received this email because you taught one or more courses at a distance sometime between the spring of 2001 and the spring of 2005 for Iowa State University.

Tomorrow I will send you an electronic survey to gauge your perceptions and practices for effective distance teaching.

Here is the link to my survey:
http://www.surveymonkey.com/s.asp?A=102374423E35590

I hope you will take the time to complete it. It has 30 items and should only take about 10 minutes. If possible, I would like to have all data collected by Friday, November 18, at 5pm.

Below are more details about the survey and your rights as a participant.

This is a research study. Please take your time in deciding if you would like to participate. Please feel free to ask questions at any time.

The purpose of this study is to determine practices Iowa State University faculty use to deliver courses at a distance and their perceptions of good practices.

RISKS/BENEFITS

There are no foreseeable risks for participating in this study. If you decide to participate in this study there may be no direct benefit to you. It is hoped that the information gained in this study will benefit society by providing valuable information about good teaching practices for delivering courses at a distance. You will not have any costs from participating in this study and you will not be compensated for participating in this study.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary and you may refuse to participate or leave the study at any time. If you decide to not participate in the study or leave the study early, it will not

result in any penalty or loss of benefits to which you are otherwise entitled.

CONFIDENTIALITY

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy your records for quality assurance and data analysis. These records may contain private information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken:

- You will be assigned a unique code that will be used instead of your name, which will be kept with the data.
- Only my major professor (Dr. Ann Thompson) and I (principal investigator) will have access to the data.
- Data will be stored on a secure server that is password protected.
- Data will be retained until May of 2006, at which point it will be deleted.
- If the results are published, your identity will remain confidential--only group data is of interest.

QUESTIONS OR PROBLEMS

You are encouraged to ask questions at any time during this study. For further information about the study, contact me, Ann Bugler, at 515.233.6544 or bugler@iastate.edu.
You may also contact my major professor, Dr. Ann Thompson, at 515.294.5287 or eat@iastate.edu. If you have any questions about the rights of research subjects or research-related injury, please contact Ginny Austin Eason, IRB Administrator, (515) 294-4566, austingr@iastate.edu, or Diane Ament, Research Compliance Officer, (515) 294-3115, dament@iastate.edu.

****

SUBJECT SIGNATURE

By clicking on the link to the survey, you indicate that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered.

Here again is the link to my survey:
http://www.surveymonkey.com/s.asp?A=102374423E35590

I know your time is valuable, so I thank you for your participation.

Best regards,

Ann Bugler
MS Candidate
Curriculum and Instructional Technology
Iowa State University

Please note: If you do not wish to receive further emails from me, please click the link below, and you will be automatically removed from my mailing list.
http://www.surveymonkey.com/r.asp?A=102374423E35590

APPENDIX C

SURVEY INSTRUMENT

Exit this survey >>

You have been selected for this survey because you taught at a distance at Iowa State University between the spring of 2001 and the spring of 2005.

There are 30 items that should take about 10 minutes to answer. Unless specified, all questions pertain to distance courses/students.

Exit at any time by clicking on the link in the top right of your screen. You may return later to edit your existing answers and will be taken to the point where you left off. Once complete, you will not be able to return.

Due to the nature of the software, some questions will not let you proceed until you click an answer. If you do not wish to respond, please click 'No opinion'.

Your responses will be kept confidential and no individual data will be reported.

Feel free to contact me if you have any questions at bugler@iastate.edu or 515.294.9732. If you would like to contact my major professor, Dr. Ann Thompson, you can reach her at eat@iastate.edu.

Thank you,
Ann Bugler
Graduate Student in Curriculum & Instruction
Iowa State University

Next >>

Exit this survey >>

1. Please rate your level of agreement with the following statements:

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
Departments should provide the resources necessary for delivering courses at a distance	○	○	○	○	○
Students should have adequate technical skills before enrolling in a distance course (word processing, ability to use Internet, etc.)	○	○	○	○	○
Deadlines for distant students to submit assignments should be flexible	○	○	○	○	○
Teachers should expect satisfaction from teaching at a distance	○	○	○	○	○

2. Please rate your level of agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
My distant students generally seem to have the proper technical skills required for my courses	○	○	○	○	○
Teaching at a distance gives me satisfaction	○	○	○	○	○
The deadlines I set for course assignments are flexible	○	○	○	○	○
I receive support from my department for distance teaching	○	○	○	○	○

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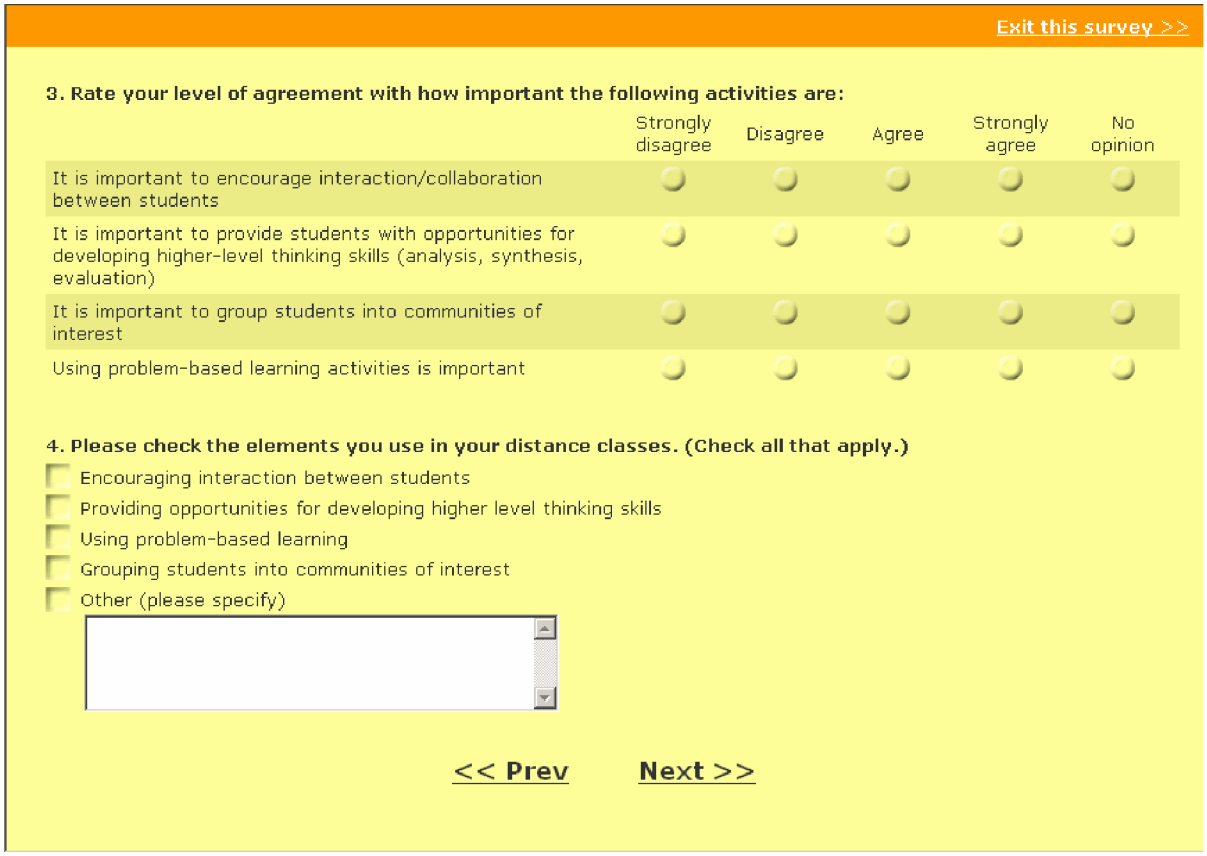

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3. Rate your level of agreement with how important the following activities are:

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
It is important to encourage interaction/collaboration between students	○	○	○	○	○
It is important to provide students with opportunities for developing higher-level thinking skills (analysis, synthesis, evaluation)	○	○	○	○	○
It is important to group students into communities of interest	○	○	○	○	○
Using problem-based learning activities is important	○	○	○	○	○

4. Please check the elements you use in your distance classes. (Check all that apply.)

- ☐ Encouraging interaction between students
- ☐ Providing opportunities for developing higher level thinking skills
- ☐ Using problem-based learning
- ☐ Grouping students into communities of interest
- ☐ Other (please specify)

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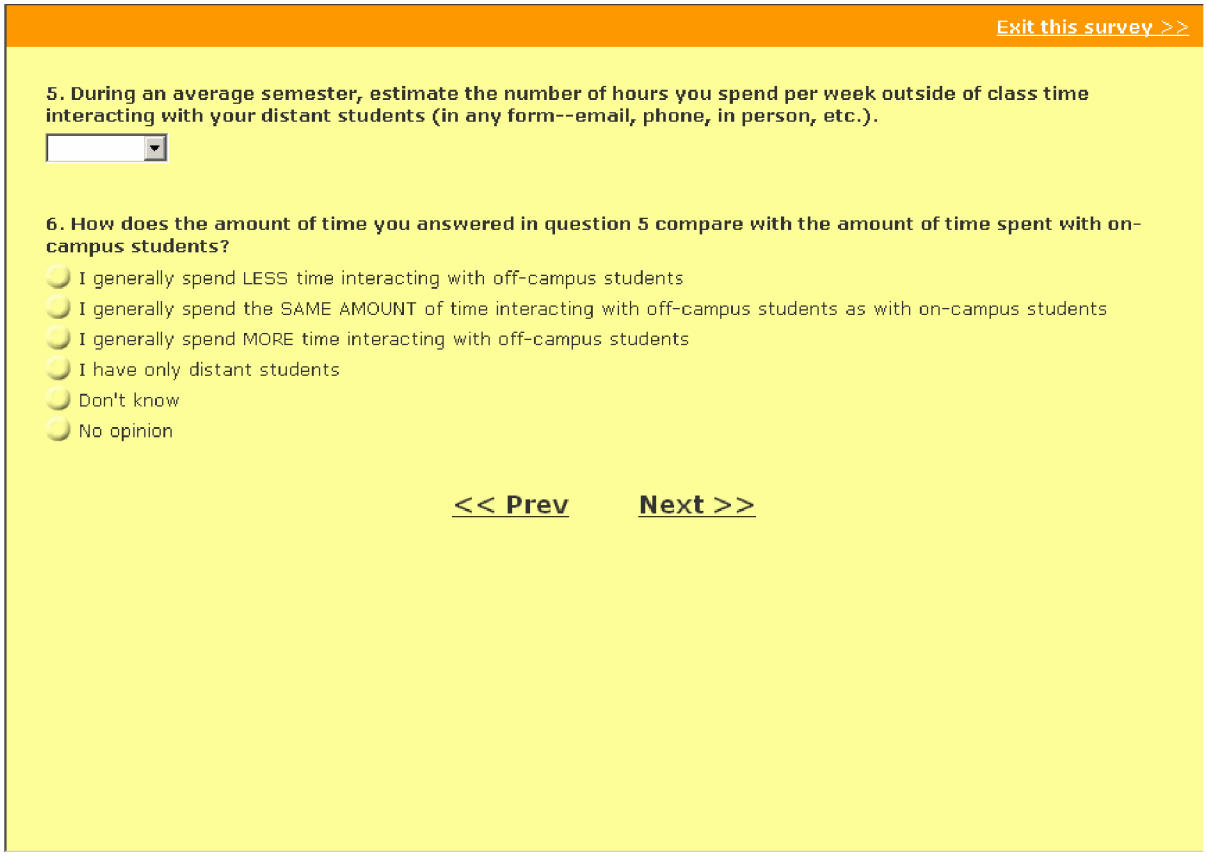
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5. During an average semester, estimate the number of hours you spend per week outside of class time interacting with your distant students (in any form--email, phone, in person, etc.).
6. How does the amount of time you answered in question 5 compare with the amount of time spent with on-campus students?
I generally spend LESS time interacting with off-campus students
I generally spend the SAME AMOUNT of time interacting with off-campus students as with on-campus students
I generally spend MORE time interacting with off-campus students
I have only distant students
Don't know
No opinion
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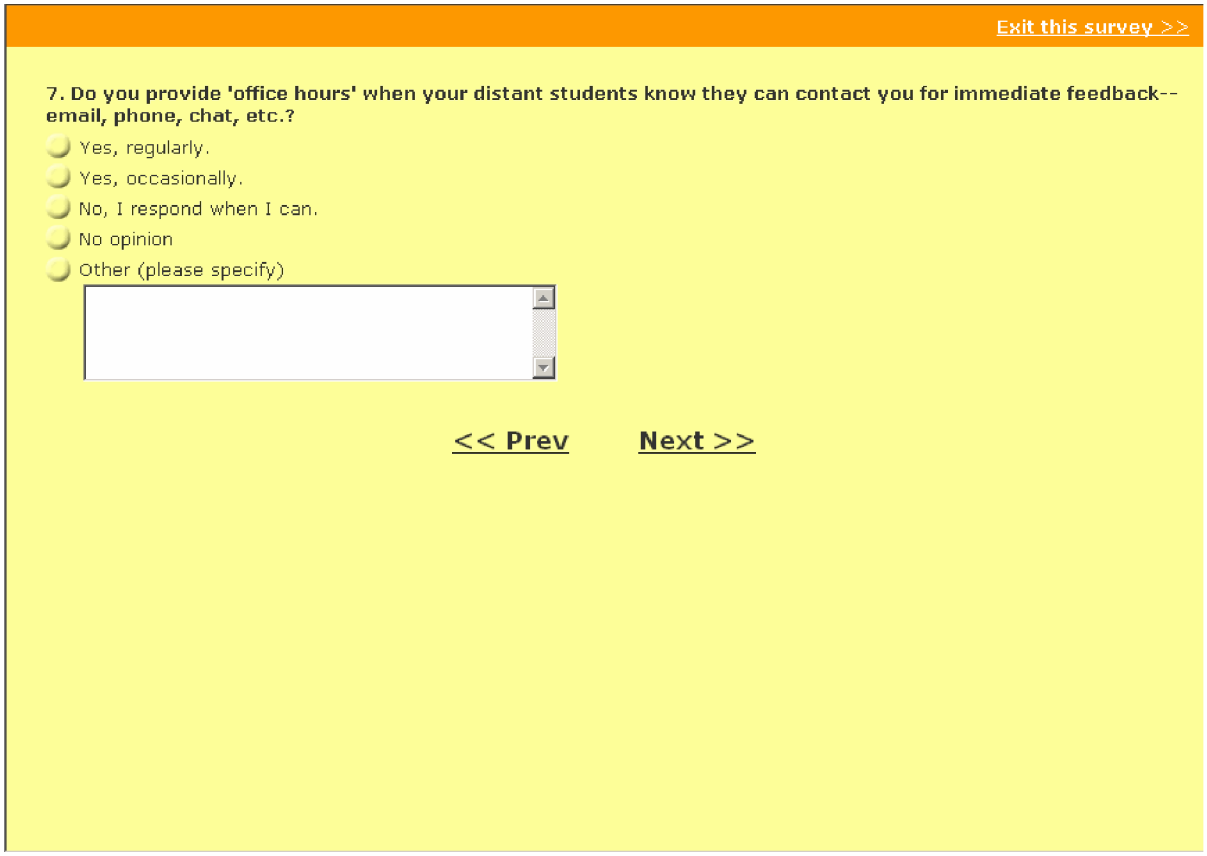
Exit this survey >>
7. Do you provide 'office hours' when your distant students know they can contact you for immediate feedback--email, phone, chat, etc.?
Yes, regularly.
Yes, occasionally.
No, I respond when I can.
No opinion
Other (please specify)
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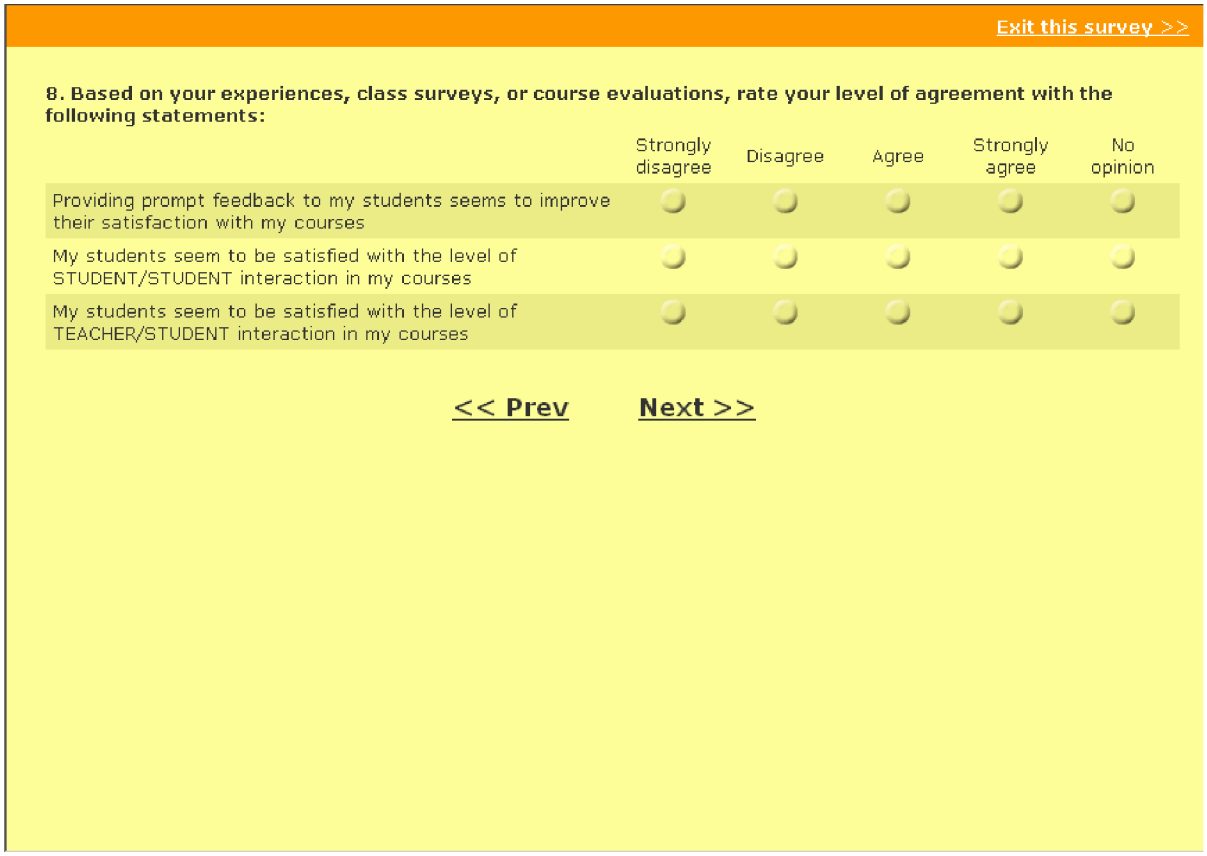

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8. Based on your experiences, class surveys, or course evaluations, rate your level of agreement with the following statements:

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
Providing prompt feedback to my students seems to improve their satisfaction with my courses					
My students seem to be satisfied with the level of STUDENT/STUDENT interaction in my courses					
My students seem to be satisfied with the level of TEACHER/STUDENT interaction in my courses					

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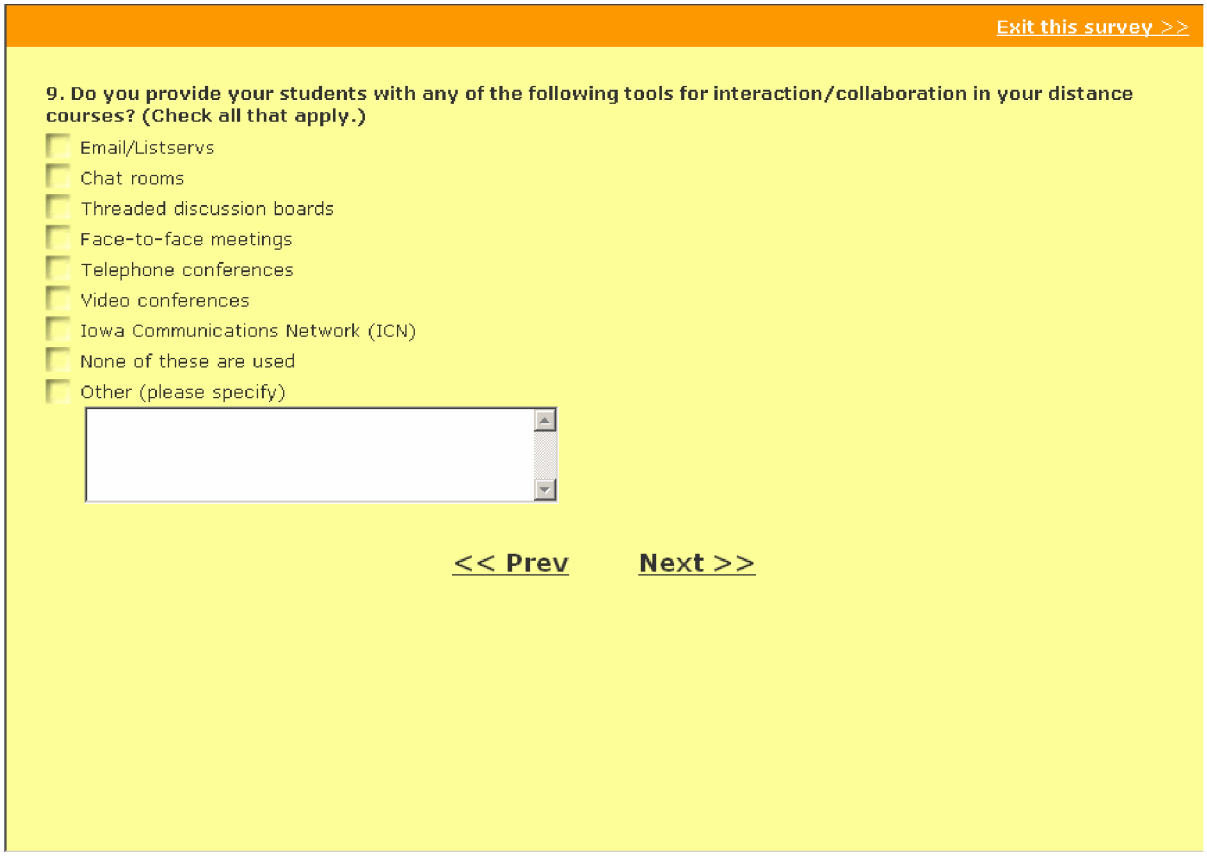
Exit this survey >>
9. Do you provide your students with any of the following tools for interaction/collaboration in your distance courses? (Check all that apply.)
Email/Listservs
Chat rooms
Threaded discussion boards
Face-to-face meetings
Telephone conferences
Video conferences
Iowa Communications Network (ICN)
None of these are used
Other (please specify)
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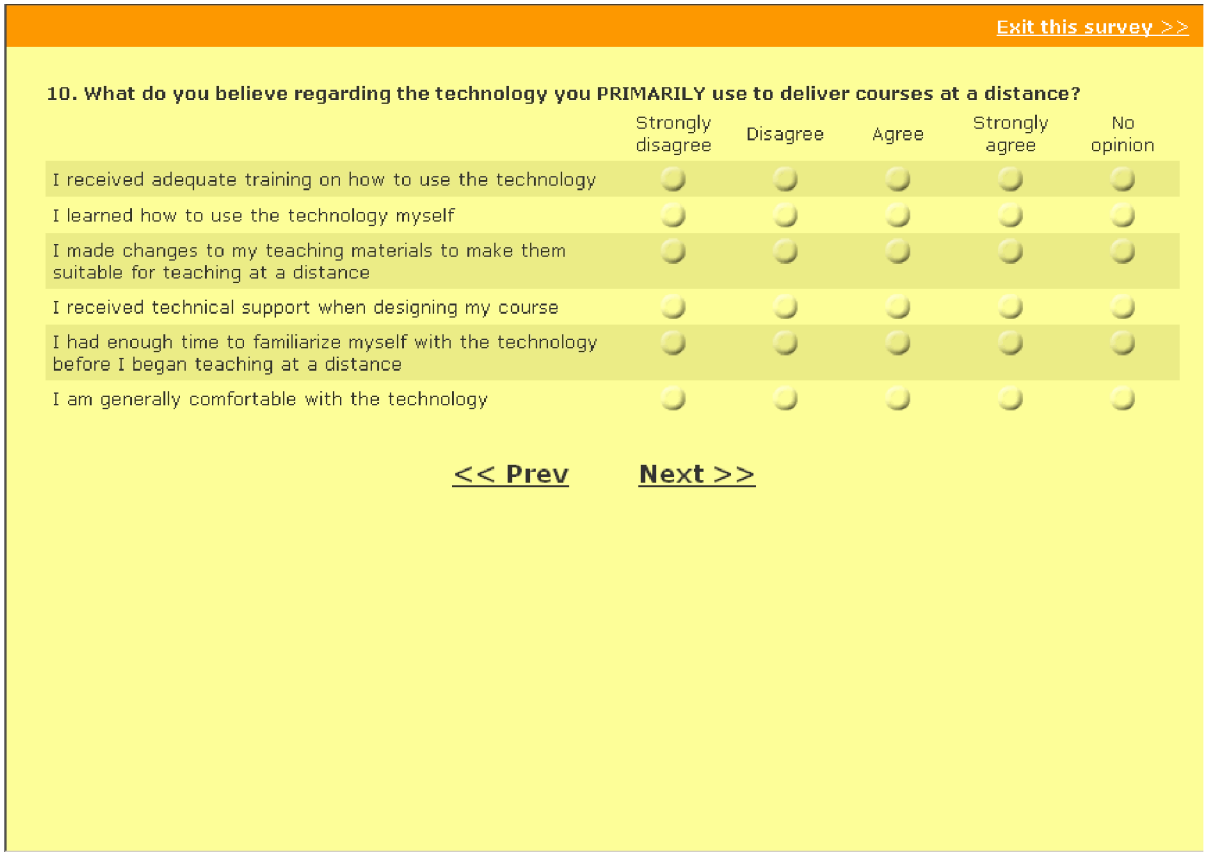

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10. What do you believe regarding the technology you PRIMARILY use to deliver courses at a distance?

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
I received adequate training on how to use the technology					
I learned how to use the technology myself					
I made changes to my teaching materials to make them suitable for teaching at a distance					
I received technical support when designing my course					
I had enough time to familiarize myself with the technology before I began teaching at a distance					
I am generally comfortable with the technology					

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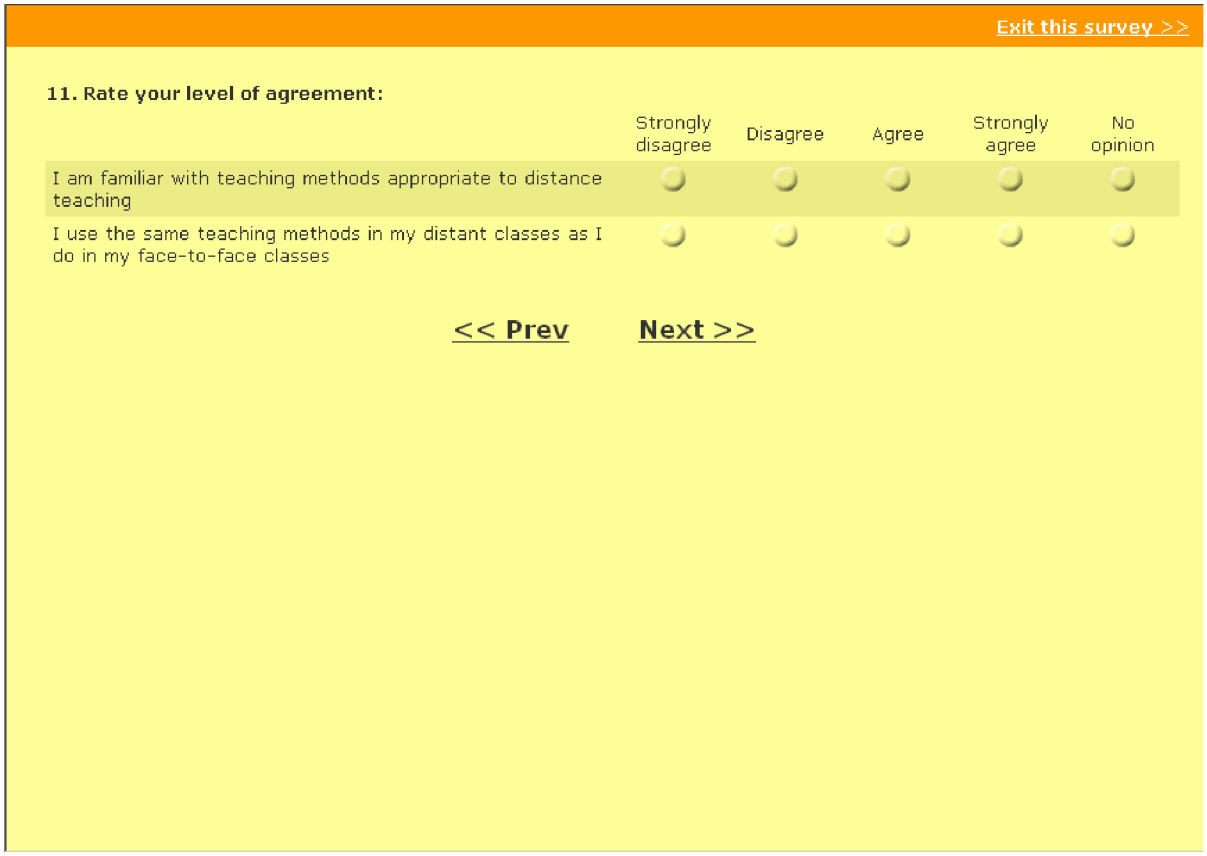

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11. Rate your level of agreement:

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
I am familiar with teaching methods appropriate to distance teaching	○	○	○	○	○
I use the same teaching methods in my distant classes as I do in my face-to-face classes	○	○	○	○	○

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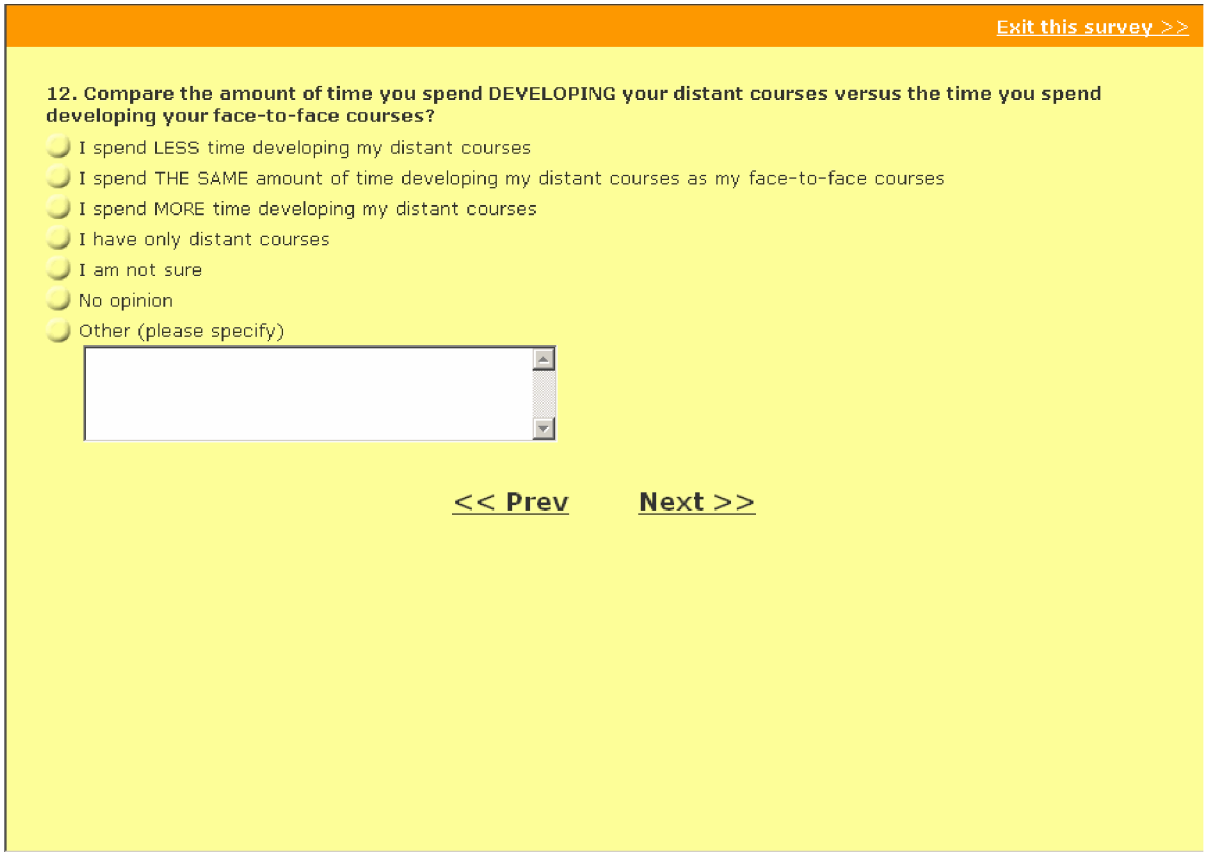
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12. Compare the amount of time you spend DEVELOPING your distant courses versus the time you spend developing your face-to-face courses?
I spend LESS time developing my distant courses
I spend THE SAME amount of time developing my distant courses as my face-to-face courses
I spend MORE time developing my distant courses
I have only distant courses
I am not sure
No opinion
Other (please specify)
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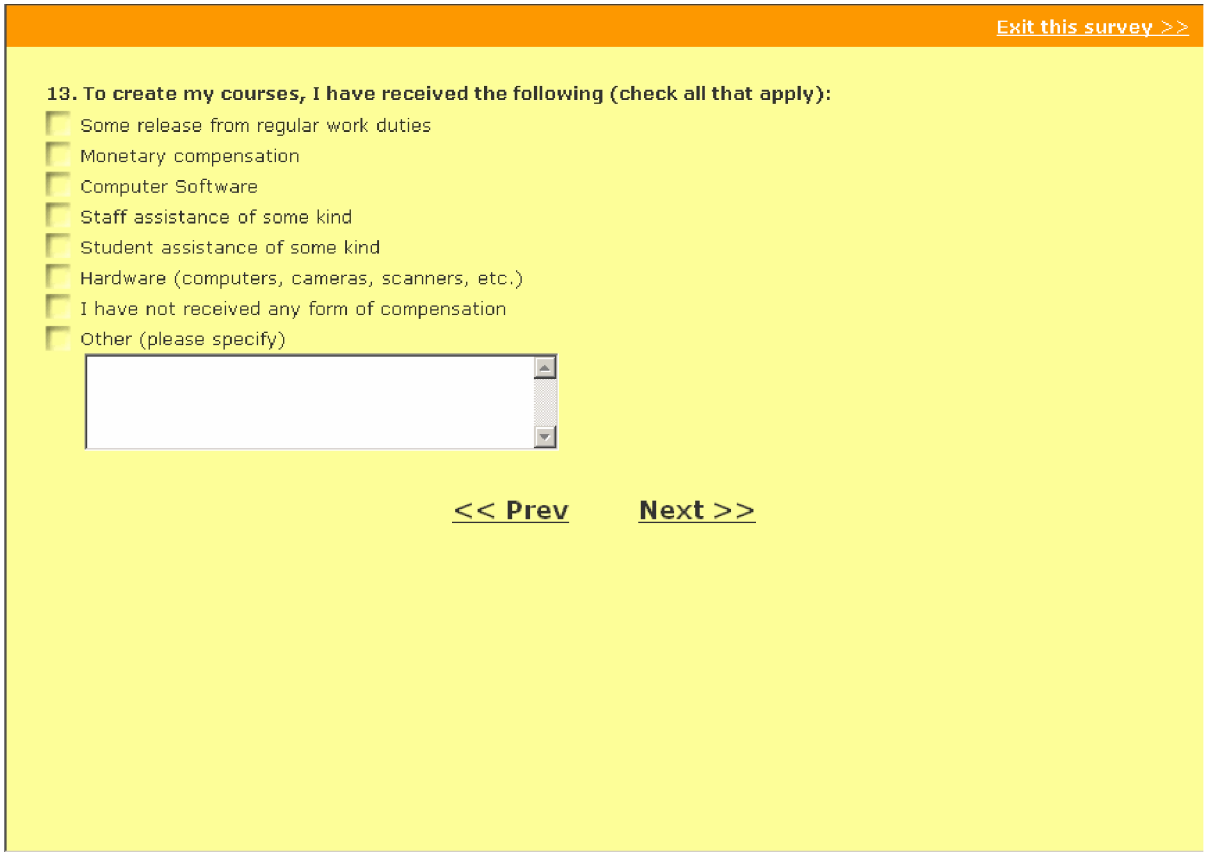
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13. To create my courses, I have received the following (check all that apply):
Some release from regular work duties
Monetary compensation
Computer Software
Staff assistance of some kind
Student assistance of some kind
Hardware (computers, cameras, scanners, etc.)
I have not received any form of compensation
Other (please specify)
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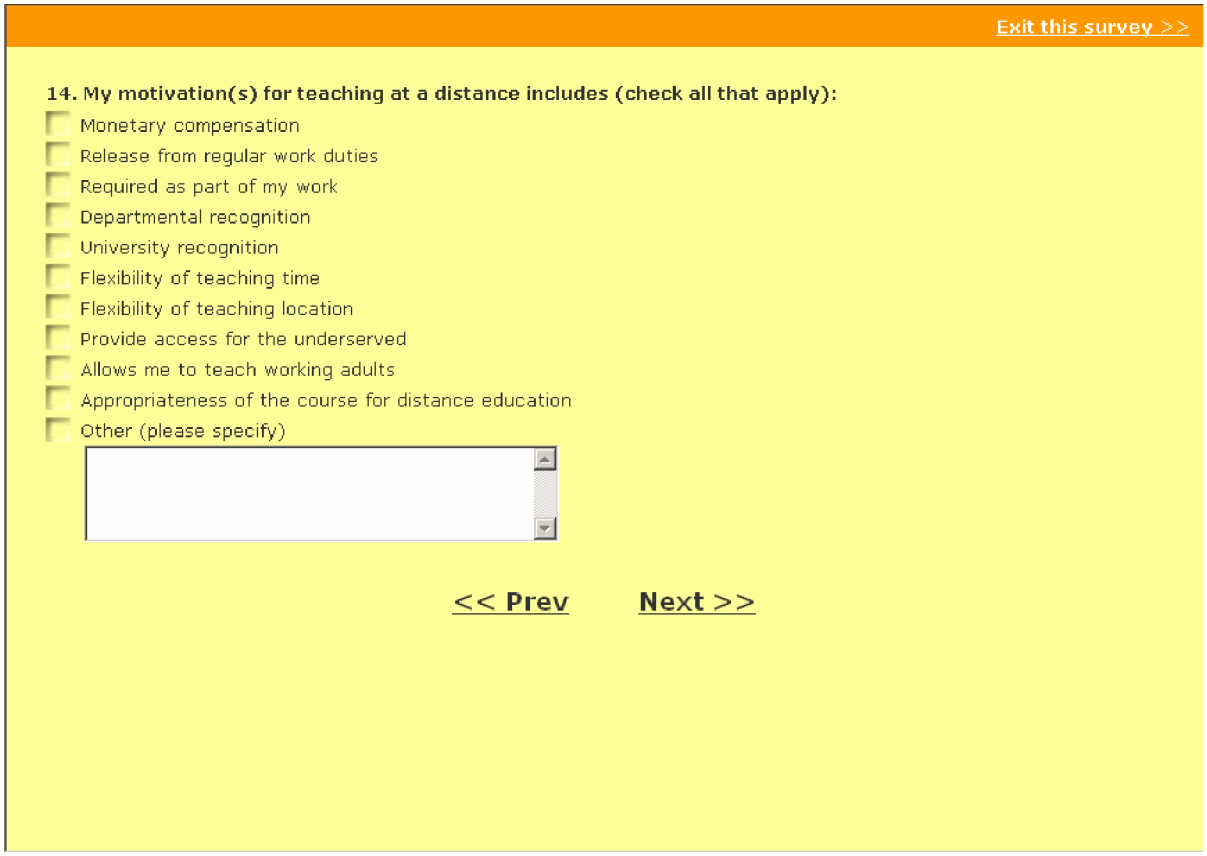
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14. My motivation(s) for teaching at a distance includes (check all that apply):
Monetary compensation
Release from regular work duties
Required as part of my work
Departmental recognition
University recognition
Flexibility of teaching time
Flexibility of teaching location
Provide access for the underserved
Allows me to teach working adults
Appropriateness of the course for distance education
Other (please specify)
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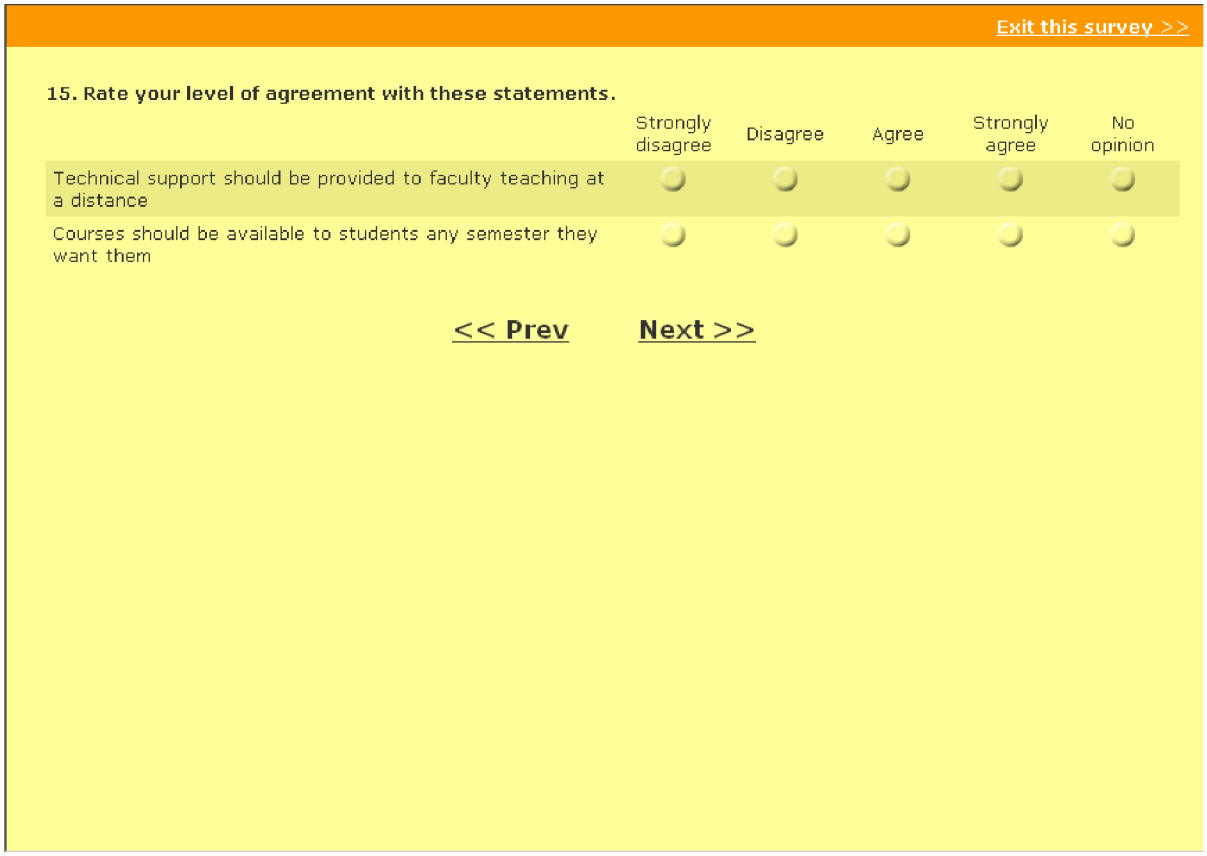

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15. Rate your level of agreement with these statements.

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
Technical support should be provided to faculty teaching at a distance					
Courses should be available to students any semester they want them					

<< Prev Next >>

Exit this survey >>

16. Rate the following:

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
I believe I know my distant students well	○	○	○	○	○
The delivery systems I primarily use are generally reliable	○	○	○	○	○
My courses are available when the students want them	○	○	○	○	○
I have good access to technical support	○	○	○	○	○

17. How much technical support do you estimate you need per week to DELIVER a single distant course?

- ○ Not sure
- ○ 0-2 hours per week
- ○ 3-5 hours per week
- ○ 6-8 hours per week
- ○ 9-11 hours per week
- ○ More than 11 hours per week

<< Prev **Next >>**

Exit this survey >>

18. Based on your experiences and course outcomes, rate the following statements for distance education in general.

	Strongly disagree	Disagree	Agree	Strongly agree	No opinion
Interaction between teacher and student improves student achievement (such as grades or quality of work)	○	○	○	○	○
Interaction between students provides satisfaction for the students	○	○	○	○	○

19. As far as learning outcomes (such as grades, quality of work, improvements in performance, etc.), would you say your distant students achieve:

- ○ LESS than your face-to-face students
- ○ AS much as your face-to-face students
- ○ MORE than your face-to-face students
- ○ I have only distant students
- ○ No opinion

<< Prev **Next >>**

Exit this survey >>

20. Based on experiences, course evaluations, or class surveys, would you say your distant students are:

- LESS satisfied than your face-to-face students
- AS satisfied as your face-to-face students
- MORE satisfied than your face-to-face students
- I have only distant students
- No opinion

21. When my distant students fill out class evaluations, they generally give my classes:

- LOWER ratings than do the on-campus students
- EQUAL ratings as the on-campus students
- HIGHER ratings than do the on-campus students
- I have only distant students
- No opinion
- Other (please specify)

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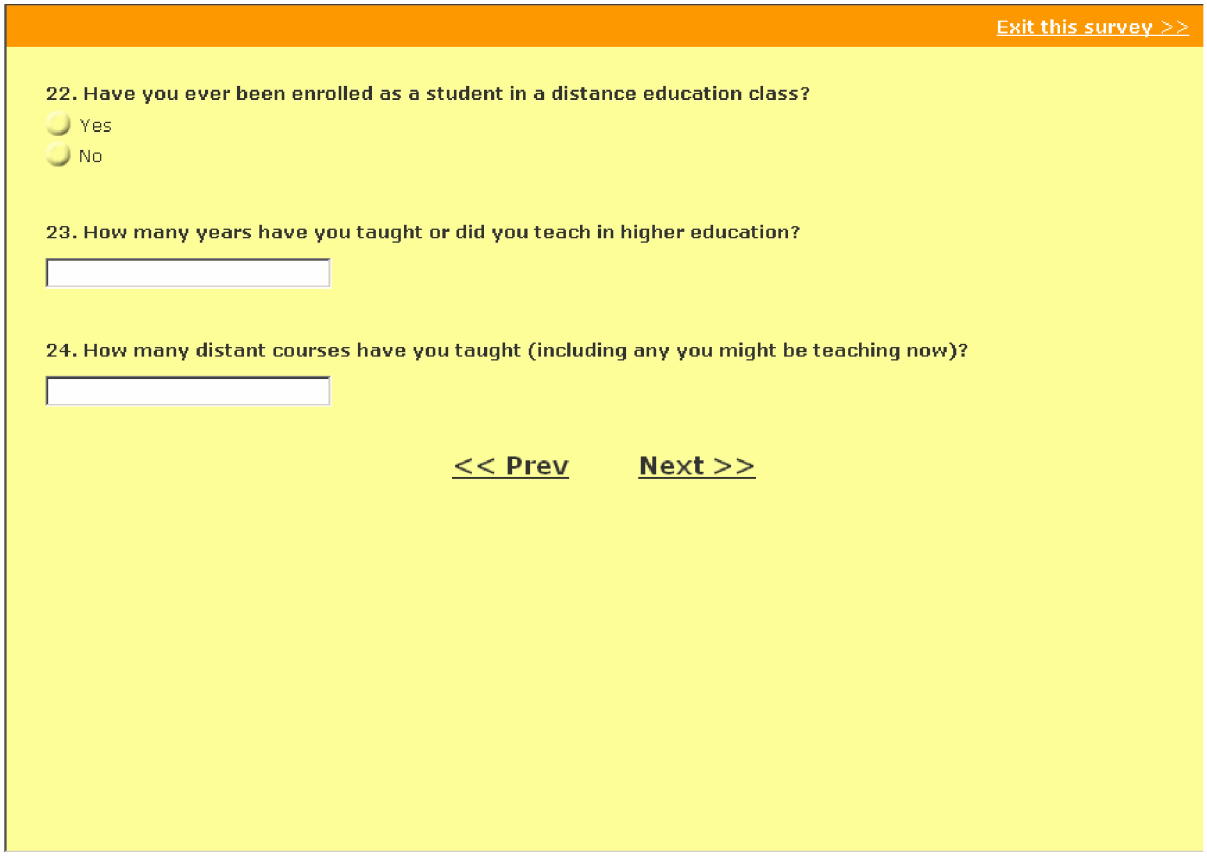
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22. Have you ever been enrolled as a student in a distance education class?
Yes
No
23. How many years have you taught or did you teach in higher education?
24. How many distant courses have you taught (including any you might be teaching now)?
<< Prev
Next >>

Exit this survey >>

25. Please select the types of technology you have used to deliver courses at a distance (check all that apply).

- [ ] DVD
- [ ] Web software other than WebCT (specify below)
- [ ] CD-Rom
- [ ] Videotape
- [ ] Streaming Video
- [ ] Video conference
- [ ] WebCT
- [ ] Other (please specify)

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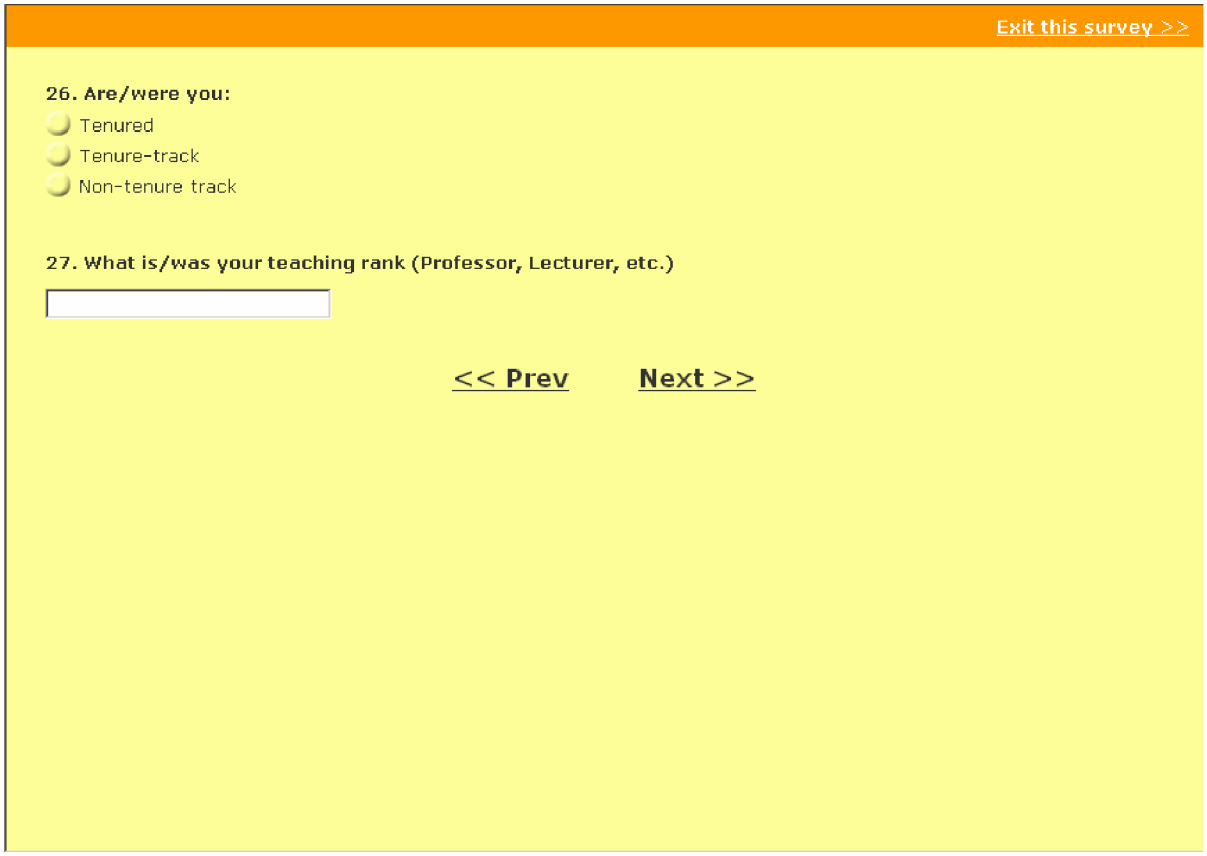
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26. Are/were you:
Tenured
Tenure-track
Non-tenure track
27. What is/was your teaching rank (Professor, Lecturer, etc.)
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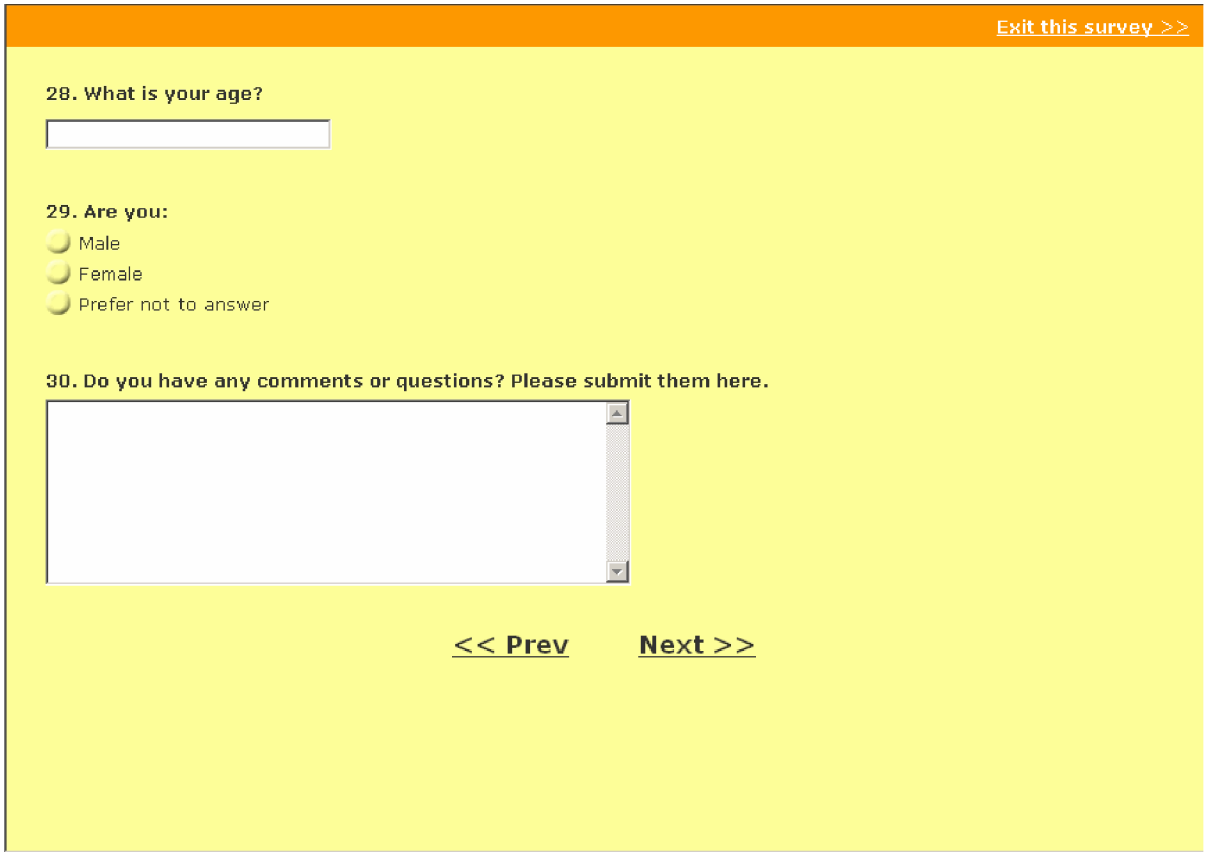
Exit this survey >>
28. What is your age?
29. Are you:
Male
Female
Prefer not to answer
30. Do you have any comments or questions? Please submit them here.
<< Prev
Next >>

Exit this survey >>

Thank you!

Many thanks for completing this survey! Your time is valuable, so I appreciate your input.

Results from this study will be used to highlight and identify good practices in distance teaching in higher education.

If you have any questions or comments, feel free to contact me at 515.294.9732 or bugler@iastate.edu.

You may also contact Dr. Ann Thompson at 515 294-5287 or eat@iastate.edu.

Ann Bugler

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APPENDIX D

DELIVERY METHODS

Table 5. *Delivery methods listed by ISU faculty*

WebCT[a]	Moodle	Breeze
Web software other than WebCT	Iowa Communications Network (ICN)	Fly or drive to distance education students' location
CD-Rom	Audiotape	VoIP
DVD	Telephone conferences	Drupal
Videotape	Maple TA	Apache
Streaming Video	Axio	Aplia
Video conferences	KState Online	UK OU System
Mail	Blackboard	Streaming Audio
Podcasting/Vodcasting	DE students come to campus	Blogging

a WebCT is the official course management system for Iowa State University.

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